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Editorials

HAPPY NEW YEAR!

For the thirty-first time the ILLINOIS MEDICAL JOURNAL sets down in black and white its sincerest wishes for a happy and prosperous twelvemonth to the medical profession.

With what may appear to be a trite insistence upon the point that "God helps those that help themselves" and a tedious repetition of the fact that now is the time for all good medicos to come to the aid of the profession, simple honesty demands the re-assertion. Neither this year nor any year hereafter will be either prosperous, or eventually endurable, if the medical profession does not at once begin upon the supreme effort to pull itself out of the fatal slough of lay dictation, state medicine and sovietized legislation.

Though the profession at large appears to have become slightly more cognizant of the menaces threatening both the public welfare and the science of medicine this awakening has not yet been followed by a sufficiently virile impetus to strive to remedy the situation. And even this awakening is almost offset by the friendly hand extended in many quarters to divert the practice of medicine from the qualified medical profession. It will be a sad day, indeed, for the public when medicine is no longer controlled and practiced by scientific medical men but rather by statutes, corporations and politicians.

As neither the ILLINOIS MEDICAL JOURNAL nor its editor is a pessimist, the belief maintains that the doctors will be as quick to rise in behalf of the emergency of the mother science as they would immediately come to heal when emergency arises in other households. As soon as the profession awakens to the real nature of the tumult within the ranks, there is no doubt but that the cause of the tumult will be stamped out. It is clear, however, that in some quarters this awakening will be delayed until a more shrill and raucous alarm bell than any we

have sounded, rings in the ears of many a well intentioned but sadly dozing doctor. Economics is no longer a thing apart from the medical profession. There are many problems of this nature to be tackled and conquered in the coming year. Among these must be mentioned schemes for minimizing the cost of medical education, the abolition of lay dictation, and last but far from least, that of medical practice by corporations and by those scientifically unqualified to traffic in the healing arts.

With these remedial determinations strong in mind, a prosperous New Year is certain of achievement for the profession, by the profession and with the profession.

THE 1930 ANNUAL MEETING OF THE ILLINOIS STATE MEDICAL SOCIETY

The 1930 Annual meeting of the Illinois State Medical Society will be held in Joliet on May 20, 21, and 22, 1930. The Will-Grundy Medical Society, the host society, has started the arrangements for a highly successful meeting. Dr. B. G. Wilcox, Joliet, has been selected as General Chairman of the Arrangement Committee and has grouped into his committee, the following:

COMMITTEE ON ARRANGEMENTS

General Chairman, B. G. Wilcox.

Chairman, Reception Committee, E. A. Kingston.

Chairman, Committee on Meeting Places, R. Ahlvin.

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Chairman, Committee on President's Dinner, W. Hedges.

Chairman, Transportation Committee, Walter Huey.

Chairman, Entertainment Committee, B. Klein.

Chairman, Committee on Exhibits, Raymond Brown.

Chairman, Woman's Auxiliary Committee, Marion B. Bowles.

Secretary and Treasurer of Committee, Paul E. Landmann.

It is the desire of the Committee on Arrangements to cooperate with the Illinois State Medical Society, its officers, the Council, and officers of Scientific Sections as thoroughly as possible in making the 1930 annual meeting one to be long remembered.

More definite plans concerning the 1930 Annual Meeting will be given out at an early date.

MEMBERS OF STATE SOCIETY WHO DESIRE TO READ PAPERS AT ANNUAL MEETING OF THE STATE SOCIETY

All members of the Illinois State Medical Society in good standing, who desire to present papers at the 1930 Annual Meeting of the Society in Joliet, May 20, 21, 22, 1930, should get in touch with the officers of the Section in which they are interested as early as possible. The subject of the paper, nature of same, or a synopsis should be submitted with the request. The number of papers to be presented in each section is limited, and the Section Officers are anxious to have their programs completed as early as possible. It is the usual custom to divide the number of papers in each section, between members in the Chicago Medical Society, and members of Down-state Societies.

The following are officers of the several sections:

SECTION ON MEDICINE

Dr. Frank Deneen, Chairman, Bloomington.

Dr. L. D. Snorf, Secretary, 25 East Washington Street, Chicago.

SECTION ON SURGERY

Dr. F. L. Brown, Chairman, 4034 West Madison Street, Chicago.

Dr. J. H. Bacon, Secretary, Peoria.

SECTION ON EYE, EAR, NOSE AND THROAT

Dr. Walter Stevenson, Chairman, Quincy.

Dr. Harry S. Gradle, Secretary, 58 East Washington St., Chicago.

SECTION ON PUBLIC HEALTH AND HYGIENE

Dr. John J. McShane, Chairman, Springfield.

Dr. Chas. H. Miller, Secretary, 826 East 61st Street, Chicago.

SECTION ON RADIOLOGY

Dr. I. S. Trostler, Chairman, 25 East Washington St., Chicago.

Dr. Henry W. Grote, Secretary, Bloomington.

SECRETARIES' CONFERENCE

Dr. W. H. Smith, President, Benton.

Dr. I. L. Foulon, Vice-President, East St. Louis.

Dr. W. D. Murfin, Secretary, Decatur.

It is the desire of each Section, to have the best program for 1930, that it is possible to get, and the papers must be carefully selected, which makes it necessary to submit as much information relative to the nature of same, as possible, so the programs can cover as wide a range as possible in each section.

DOCTORS DESIRING TO PRESENT PAPERS BEFORE THE 1930 MEETING OF THE ILLINOIS STATE MEDICAL SOCIETY

TAKE NOTICE.

Members of the Illinois State Medical Society wishing to present papers before the Surgical Section at the next meeting in Joliet, Illinois, May 20, 21 and 22, 1930, kindly communicate with the undersigned.

The title and synopsis of the subject must be in the hands of the Secretary not later than January 15, 1930.

FRANK L. BROWN, M. D.,
Chairman, Section on Surgery,
4034 Madison St., Chicago, Ill.

JAY H. BACON, M. D.,
Peoria Life Insurance Bldg.,
Peoria, Ill.

MEMBERS DESIRING TO PRESENT PAPERS BEFORE THE SECTION OF PUBLIC HEALTH AND HYGIENE OF THE ILLINOIS STATE MEDICAL SOCIETY

Members of The Illinois State Medical Society wishing to present papers before the section on Public Health and Hygiene at the next meeting of the Illinois State Medical Society to be held May 20-22, 1930, kindly communicate with the undersigned.

The title and abstract of the subject should be in the hands of the secretary not later than March 1, 1930.

(Signed) JOHN J. MCSHANE, M. D.,
Chairman,
Springfield, Illinois.
CHARLES H. MILLER, M. D.,
Secretary,
826 East 61st Street,
Chicago, Illinois.

GIVE ENCOURAGEMENT TO THE MAN IN GENERAL PRACTICE

Public welfare demands the hastening of the day when the general practitioner shall come into his own. This does not mean a return of the faithful, romantic "old family doctor" of song and story but the vesting of the care of general human ailments in one man who shall be modern, well-educated, thoroughly up-to-date and well equipped mentally to care for the major portion of the ills that afflict mankind. This does not foretell the passing of the talented specialist whose skill at times amounts to genius, but it is the prophetic writing on the wall that means the downfall of the mediocre physician whose announcement that he is a "specialist" frequently betrays that the only thing about him that amounts to anything is his prices. Encouraging the man who is in general practice, and so instructing medical students in the necessity of maintaining a high degree of medical knowledge and skill will develop the growth of a class of specialists whose claim to the title and distinction arises from an all-round perception, prescience, knowledge and familiarity with the branch of medicine or of surgery in which they profess to excel, contrasted with present tendency to choose specialists from a group of men whose choice has suffered from the indecision or misinformation of immaturity, or from accident of environment or association. With more general practitioners of the right caliber, attending far more of the current and generic ailments of mankind, many perplexing problems of the medical profession and of medical organization will disappear. And let it be repeated, the foundations will be laid for a group of specialists whose grounding in the practice of medicine will prevail to make of them the most dreaded foes of disease and accident that the world has ever

known. They will co-operate with and not undermine the general practitioner and thus perpetuate the sanity and balance for which scientific medicine has always been the exponent.

REPORT OF THE EDUCATIONAL COMMITTEE FOR FOUR MONTHS, SEPTEMBER-DECEMBER, INCLUSIVE, SUBMITTED TO THE COUNCIL OF THE ILLINOIS STATE MEDICAL SOCIETY

Speakers' Bureau: Forty thousand people attended 143 meetings where subjects relating to "good health" were discussed by speakers scheduled through the office of the Educational Committee. The Illinois Federation of Women's Clubs, Young Mothers' Clubs, Men's groups, Auxiliaries to County Medical Society, Home Bureaus, Farmers' Institutes, Y. M. C. A.'s, Business and Professional Women's Clubs, University Clubs, Parent-Teacher Associations have all been served by the Speakers' Bureau during these four months.

Special assistance was given to organizations sponsoring public or community meetings. These meetings were well attended and the interest good. Over four hundred women attended the public meeting which was sponsored by the Woman's Club of Paris and the chairman reported "The Doctor gave a wonderfully interesting and educational talk, and the close attention given him by the large crowd present speaks for itself."

Speakers were furnished by the Committee for 15 community meetings in one county where a diphtheria immunization campaign was being conducted.

Excellent talks were given by physicians before county teachers' institutes and high school assemblies. The latter were given during American Education Week and from the reports received these talks were appreciated by both students and faculty. Several lectures were given by colored physicians of Chicago before colored students in high schools and Parent-Teacher Associations at Cairo and Alton.

Four popular health talks, three illustrated with moving picture films, have been given at the South Chicago Y. M. C. A. and six more are scheduled for 1930. About ninety business and industrial men have been present at each of these meetings.

Radio: Thirty-four health education talks have been given over radio stations WGN and WJJD. Copies of these talks covering the following subjects are on file in the office of the Committee.

High Blood Pressure—Don C. Sutton.

What the Public Should Know About Gastric Ulcers—Frank Smithies.

Nervousness—Cyril L. Hale.

Prenatal Care—D. A. Horner.

Care of the Baby—Arthur F. Abt.

The Menace of the Drinking Cup—F. P. Balmer.

An Aid to Vision—T. J. Williams.

Some Facts About the Gall Bladder—C. F. Sawyer.

Posture—S. C. Woldenberg.

Syphilis in Relation of the Wassermann Test—Mary H. Swan.

The Medical Museum—D. J. Davis.

Foreign Bodies in the Lung and Oesophagus—R. H. Good.

What, Why and How to Eat—Moses Sahud.

Headache—G. G. O'Brien.

Anemia—Charles Spencer Williamson.

Goiter—Louis D. Moorhead.

Health of the Child in School—Philip Rosenblum.

Social Diseases—Russell D. Herrold.

Health of the Adult—Edward H. Ochsner.

The Most Valuable Things in the World—Francis P. Hammond.

Subnormals—Axel F. Benson.

Why Babies Cry—Abraham Levinson.

Diabetes—Charles H. Miller.

Anti-Vivisection—William F. Peterson.

The History of Spectacles—James E. Lebensohn.

Sinus Infection—Roy C. McLaughlin.

The Periodic Health Check-Up—Fred L. Glen.

Infections—Charles H. Parkes.

Early Care of Cross Eye—Charles G. Darling.

Hernia—William J. Pickett.

The Most Favorable Diet for Maintaining Health—A. H. Hallmann.

Some Troubles of Children — Charles J. Drueck.

Scientific Service: Thirty-six physicians presented scientific papers on the following subjects before 21 different county medical societies. Gastro Intestinal Diseases, Standardization of Treatment of Fractures, Diagnosis and Surgical Treatment of Pulmonary Suppuration, Sex Gland Hormones, Results of Obstruction of the Lower Urinary Tract, Surgery, Obstetrics in General Practice, Puerperal Care, Medical Aspects of Gall Bladder Disease, Arthritis, Caudal and Trans Sacral Block, Prophylactic Care During Infancy, Essentials in the Care and Feeding of the Newborn, Common Diseases of the Skin, Endocrine Disturbances Occurring in General Practice, Bone and Joint Subject, Some Therapeutic Principles Involved in Use of Radium and X-ray, Treatment of Hemorrhoids by Non-Surgical and Operative Methods, Cancer, the Old Man and His Prostate, Diagnosis and Treatment of Acute Intestinal Obstruction, Nephritis in Children, Uterine Hemorrhage, Endocrine Factors in Common Colds.

Dr. Camp has sent to all county secretaries a list of physicians who have agreed to assist the Scientific Service Committee and the subjects they have consented to present to medical societies of Illinois. The Educational Committee has assisted some counties in securing better attendance. 725 news items announcing meetings of these societies have been released to newspapers in Illinois, Indiana, Missouri and Iowa.

Press Service: 2,652 news articles were released to newspapers during the months of September, October, November and December. This number included notices of special meetings, the regular meetings of the Chicago Medical Society and its Branches, and the health educational column which is now supplied to about 100 newspapers in Illinois.

56 educational articles have been written about: Contagious Diseases and School, Are You Worried About Your Health? Gallbladder Trouble, Correct Posture, Menace of the Drinking Cup, Sore Throat, How Does Your School Measure Up? Lead Poisoning, That First Cold, What to do Before the Doctor Comes, First Aid for Wounds, Diseases Transmitted to Man by Animals, Influenza—A Health Problem, How and Why of Blood Transfusions, Sinus Infection, Thumb Sucking, Worms in Children, Paralysis, Cold Weather Skin Troubles, Guard Against Whooping Cough, Beware of Deadly Gas in Closed Garage, Winter Clothing, Can a Mother "Mark" Her Child? Scarlet Fever, Diabetes, Cold Weather and Winter Ailments, the Oyster Season, Heart Disease, Outdoor Sleeping, Shingles, Croup, Faulty Eating Habits in Children, Health Habits, Chapter from Medical History, Menace of Heart Disease, Animals and the Advancement of Medical Science, Ultraviolet Abuse, Botulism, Water Drinking, Septicemia, That New Style, Your Teeth May Be to Blame, Trench Mouth, a Social Disease, Be Careful What You Swallow, Airplane and Radio in the Health Field, Home Care of the Sick, Ringworm of the Scalp, Tularemia, Value of God Liver Oil, Pneumonia, Frost Bite, Bad Year for Diphtheria, Rheumatism or Arthritis, Smallpox Warning, Eating to be Well.

Miscellaneous: More than 5,000 clippings were received and filed in the office of the Committee. Physicians of Illinois are invited to make use of these files where information on almost every health topic may be found.

185 package libraries have been sent out to speakers.

Films have been secured for lay groups and physicians. These were loaned by the State Department of Public Health, the American Society for the Control of Cancer, the Metropolitan Life Insurance Company. The Committee will gladly order films or other illustrative health material for schools or clubs.

The Committee has outlined a program for cooperation with the Chicago Woman's Club in the matter of education of the public to the early danger signals of cancer.

Cooperation is also being given the Chicago Council of Jewish Women in furnishing speakers to give talks on cancer before the 81 clubs in the Council and in scheduling speakers to give talks before mothers of school children in certain sections of the city. Through this Council the Committee is also furnishing health plays, songs, films, etc., to these schools.

Material is being collected for some of the Women's Auxiliaries who are forming groups to study questions of particular interest to the medical profession.

The Committee assisted one county in paving

the way for the establishment of a county health organization as outlined by the Child Hygiene Advisory Council of the State Department of Public Health.

JEAN MCARTHUR,
Secretary.

GLEN FRANK, PRESIDENT OF THE UNIVERSITY OF WISCONSIN, STATES THAT THE GREATEST OPPORTUNITIES IN MEDICINE TODAY LIE IN THE FIELD OF GENERAL PRACTICE

President Glen Frank in the Chicago Daily News, May 8, 1929, had an article on the Perils of Specialization. We quote:

THE FAMILY DOCTOR

"In all fields of modern enterprise we are facing the problem of the perils of specialization. The highest achievements of modern life are due to the fact that modern science has given us the specialist.

"But humanity has a habit of swinging from extreme to extreme.

"The old generalist sinned on the side of superficiality, but the modern specialist is sinning on the side of fractionalism.

"Nowhere is this more evident than in the field of medicine.

"When all is said and done the doctor must treat patients, not parts of patients.

"A patient may be examined by ten specialists and the results of their examinations will have a depth and breadth and accuracy that would be impossible apart from intensive specialization, but the patient may die unless the separate findings of the separate specialists are seen in their relation and result in sound conclusions respecting treatment of the patient not as an aggregation of organs but as an organism.

"I should like to say to young men who, reading this column, may be thinking of medicine as a career that humanity needs great general practitioners, great family doctors.

"I am convinced that the greatest opportunities in medicine today *lie in the field of general practice.*

"The general practitioner has a chance to study disease that rarely comes to the specialist.

"He can know whole families and know the tangled forces of heredity that focus in the individual.

"He can know the individual over a long stretch of years, not in brief hours of examination.

"He can know the long-time results of treatment.

"We need the specialized practitioner, we need the consultant, but we need also the general practitioner.

"It is very important that young men considering medicine as a career should realize that to be a general practitioner does not necessarily mean being shunted off into the meager life of a rural pill peddler, but that we are at a point in the evolution of medicine when the situation cries aloud for a new race of highly trained general practitioners."

ROYAL RUSSIAN EXPLAINS HOW KOLLONTAI MATERNALISMS TEACH RUSSIAN CHILDREN NEEDS AND USES OF ABORTION RATHER THAN HEALTHFUL SPORT

GRAND DUKE ALEXANDER SAYS SOVIET DESTRUCTION OF HOME WILL PROVE BOOMERANG*

Grand Duke Alexander of Russia, the present tenth in succession to the lost thrones of the Romanoffs and the brother-in-law of the late and last of the czars makes pertinent comment upon Russia's moral debacle under the soviet. Much of this is applicable to American adaptations of soviet so-called reforms, especially state medicine.

Grand Duke Alexander says he would not have the old Russia back, but that the new, enmeshed in the moral obliquity of sovietism and communism is unspeakable. *And he condemns especially those teachings of Mme. Kollontai upon which the doctrines and dogmas of the Children's Bureau of the United States Department of Labor base so many of their tenets.* The grand duke really ought to know what he is talking about. He ought to know his Russia. In an interview with a representative of

*This is an exclusive interview with Grand Duke Alexander of Russia, written especially for the ILLINOIS MEDICAL JOURNAL. The Duke's perspective on Madam Kollontai is both interesting and illuminating and supports the Editor's consistent attitude in opposition to the sovietization of our homes and youth, American medicine and the sick and ailing of the nation.

THE ILLINOIS MEDICAL JOURNAL he spoke at length. Excerpts from this speak for themselves.

"Russia is in a terrible state. Russia with all her wealth and her great, if sometimes misguided, past will inevitably regain her moral and ethical balance. But this equilibrium cannot be regained until the sanctity of the home, the family, and the church and the honor of women and children has become as it should be in all nations, a matter of reverence. Bolshevism is terror, and destruction, and the worst sin of bolshevism is the havoc it has wreaked upon the children.

"Poor Russia's 'wild children' are a living scandal to the civilized world. Where there is a gospel of so-called 'free love' maintained there is moral and national slavery. What have we in Russia? Little girls, some as young as eight or ten years of age, openly having connections with men, and knowing even at that age that the right of abortion is as free and easy as the right to a drink of water. Disease and sex animalism have made and are making of these pitiful 'war children' a race of monsters, already so far steeped in the iniquitousness of their troubles that to those of us who know what childhood should be death seems the only release for their troubles.

"Now a government that permits, nay encourages and fosters, such conditions among its children, let alone its citizenry at large, is not a government that can stand. It must fall. Poor Russia is working its way out. But the way is very dark and dreary and very long. No nation has ever thrived, no nation has ever survived, even, when the sanctity of the family was trodden under foot to make chaos.

"What I cannot understand is why the United States, the wealthiest and most advanced in prosperity of all the nations, should recognize the soviet, should give it any countenance, either by imitative policies or by cognizance. That way disaster lies.

"I would not have the old Russia back. Not for all the wealth that once was mine, nor the power, nor the potentialities. Were the White Russians to come into their own again, were all that power to be given into my hands absolutely I would make of my Russia a democracy, but a democracy founded on the gospels of peace and love and honor. That way freedom lies. Not in the slavery of the senses, nor the exploitation of lusts, nor the destruction of religion, nor the deification of communism.

"No individual can be thoroughly communistic. Communism is a vast and leprous sore. You in America do not realize how the red wall of communism runs throughout the old, old countries. Communism eats into the soul of Europe like a smouldering fire; it has spread to Asia, and even to darkest Africa. What communism has done to Russia it stands ready to do to the world. Why, then, will a nation like the United States, a leading nation, a nation such as Russia might have become had she not hearkened to the cry of the false gods, why will a nation like the United States not only tolerate sovietism but recognize it, and to some degree ape it? How many of you here in the United States know the truth, or even the half truth about red Russia About the "reforms"? Such "reforms" as teach little girls, who should be as yet learning their prayers, playing with their dolls, that the sex act and its consequences need not worry them, that their bodies can court rather than evade defilement?

"Even red Russia is waking up to the fallacy of such degradation. Here and there are murmurs, half-whispers, a turning like the wind in the wheat, vanished before it is grasped; missed before it is heard. But oh, the long, long way that must be trod before the sanctity of the family is restored in Russia.

"One of the weekly magazines has been carrying a series of articles about Russia and the soviet that in the main are accurate. One such article cites the incident of some children who had been sent by communists in Russia to visit communists in Germany. The poor little ones on their return to Russia, hearkening back to the memories of the German families where they had been entertained, wept bitterly and sobbed, 'Oh, we didn't know that living could be made so nice.'

"That in itself contains a volume. Mme. Kollontai? She is all bolshevist; so are her teachings. I have tried to tell you what about bolshevism."

The statements of this exiled, refugee Romanoff should certainly bear weight. Here he is a cultured gentleman, with first-hand knowledge of what he speaks, a man who was a great patron

in its hey-day of the extravagant imperial Russian ballet, famed for its expense, a man who is living the work-a-day life and having his children do so without fuss or pother, and he condemns from the core the Kollontai teachings. One would expect one Russian to understand another. He has nothing to lose and even less to gain from any stand that he might or might not take for or against Mme. Kollontai, whose preachings have served as a sermon on the mount for many of the "reform advocates" of American systems of living, especially the Children's Bureau and the protagonists of the Sheppard-Towner and similar maternity legislation. There is always a kink in these great economic panaceas. Kollontai not only favors the teaching of the moot question of birth control, but goes a step further, and, as the grand duke connotes, provides abortion parlors, where it is no more disgrace in Russia to go as a patron than it is for an American woman to patronize a beauty shop. To inflict such decadent and debauching policies on the American people under the masque of "First Aid to Mothers and Children" as the Kollontai disciples of the United States have attempted and are attempting to do, would appear to be adding at least ten last straws to break the camel's back. For the gist of the whole system would be not only to corrupt the nation and destroy the democracy by the simple method of corrupting and destroying womanhood and the home, but to make the ghastly victims pay for the devastation with a ruthlessness far more sinister than the theft of the coppers from a dead man's eyes.

The grand duke knows what he is talking about, it would seem, by all the laws of inference, understanding and logic. Of how many spouting socialistic soap box orators can this be said? Those who feel like paying taxes to spread Kollontai-ism in this comparatively clean-minded country are asked to read what the grand duke has to say before putting their hands not only into their own pockets, but into the purses of their neighbors.

Note and comment:

The grand duke is the husband of the Princess Xenia, the oldest sister of the late Nicholas, and the one who was always the favorite of the Rasputin-wrecked ruler. An humanitarian, a tried and proven officer in the Russian navy; and during the World War, the head of the Imperial Russian Air Forces, his royal highness is both a man of experience and of once opulent habit and of sound common sense. He has six children and some seven or eight grand-children. Three of the sons are in this country. One sells bonds in New York; another is with an aviation manufacturer, and the third is a salesman in a Chicago retail shop. This young chap, the Prince Rostilav, second cousin of the Prince of Wales, is married to the Princess Aleka Galitzine, who likewise labors in a department store. Rostilav began selling neckties, but he has "worked up." Preferring honest labor to sympathetic and aristocratic charity, these heirs of the wealthiest throne in the world give daily a sincere demonstration of the true locale of honor. "Do well your part; there all the honor lies."

The grand duke himself has set about earning his living as a lecturer. In his sixty-four years of life the grand duke has traveled much and far. The Russian revolution left him penniless but philosophical. He made the best of things.

SOVIET RUSSIA HOLDS THAT DOCTORS ARE LESS SKILLED THAN INDUSTRIAL WORKERS AND SHOULD LIVE AND BE PAID ON A MEANER SCALE

A sidelight on medicine as it is practiced under a state of socialism in soviet Russia will be of interest both to those in sympathy with socialist trends in medicine and to those who feel that the time has not yet come to put the science of the healing arts on the same level with brick-laying or bread-making.

Upon this subject the Canadian Medical Association Journal for September, 1929, prints this statement from a special correspondent:

MEDICINE IN SOVIET RUSSIA

Dr. Ralph A. Reynolds, retired president of the American Medical Association of Vienna, on his return from Soviet Russia told the New York *Herald Tribune* that he had visited a large number of clinics in Moscow and Leningrad. Under the socialist system every worker is insured, and when he gets ill the insurance not only pays the full wage during the time of disablement but also the hospital expense.

An institution which has no parallel abroad is the night sanatorium for workers who are in a poor physical condition. These workers, instead of going home when their working hours are over, pass the remainder of the day and the night in the sanatorium. They

get a shower and are put to bed for an hour, then do physical culture exercises after which they may occupy themselves as they like until bedtime, which is fixed at an early hour. They are also served a special diet. Only on Sundays are they allowed to leave for their homes. Such a "cure" generally last two months. In Moscow there are twenty-four night sanatoria, ten of which are for tuberculosis suspects.

There are 156 day nurseries in Moscow alone, each of them near a big factory. The average attendance is 125 children. To instill the spirit of sovietism at an early age pictures of Lenin as a babe decorate the walls.

The medical service is public. Everybody is entitled to free treatment. About 140 physicians are on duty at a Moscow clinic, and from thirty to forty doctors are detailed to at-home service during night hours. As private practice is abolished anyone taken ill or meeting with an accident during the night telephones to the nearest clinic and is taken care of.

Village clinics have been distributed so that each clinic serves a population of 15,000. In the more sparsely populated districts this means that many people are more than fifty miles from a doctor. It is difficult to win the uncultured peasant class to modern ideas of hygiene; conditions in the open country are still appalling.

The Russian Government spends money lavishly on modern instruments and other equipment. Funds are always available for research work and propaganda, but the salaries of doctors are small and cannot compare with what a professor or a practitioner can earn in other countries. Physicians of high standing get about a hundred dollars a month and have to be contented with a miserable home of one or three rooms with a kitchen that is often shared by as many as six families. *The idea is that a doctor's home should not be so good as the class of homes given to Communist skilled workers who form the aristocratic class in the Soviet Republic.*

As the prospects for the medical students are totally different from what they once were, the class of people who go in for medical studies has undergone considerable change. Only those who support the Soviets enter the medical career. Women students, who, before the war, were 34 per cent are now 55 per cent of those studying medicine. Ninety-seven per cent of all medical students are educated by the government. In return they must go where the government sends them when they have completed their studies. For many this means exile in some out of the way place with great hardships. After having served three years on the post assigned to them they are free to make a choice of their own. They can shorten this three-year period if they accomplish something outstanding. Medical studies take five years in medical school and one year in hospital.

Russian doctors follow the progress of medicine in other countries closely and take over all improvements, but their own scientific research leaves much to be desired. Dr. Reynolds had the impression that the Bolshevist system is becoming firmly entrenched, and that the rulers of Russia have the country well in hand.

GOVERNOR EMMERSON SAYS WELFARE COST IS HEAVY BURDEN

The executive points out peril to State if insanity increases.

Three and a half million dollars more of public tax money is spent each year in Illinois for charitable and penal institutional work than is devoted to education.

"More than $43,500,000, or 34.49 per cent of the state's biennial income, exclusive of the road and bond funds, is now devoted to charitable and penal institutions," Governor Emmerson said. "Slightly less than $40,000,000 is devoted to education. Only 16 per cent is devoted to the general government."

WANTED: BACK NUMBERS OF THE ILLINOIS MEDICAL JOURNAL

The Bureau of Science Library, Department of Agriculture and Natural Resources, Manila, Philippine Islands, desire back numbers of the JOURNAL as follows:

Vol. 29—February and March issues, 1916.

Vol. 30—August and December issues, 1916.

Kindly send numbers asked for to the ILLINOIS MEDICAL JOURNAL, 185 N. Wabash Ave., Chicago.

The managing editor would like a copy of Vol. 26, July, 1914. Please state price.

ILLINOIS ANTI-VIVISECTION SOCIETY IS AGAIN BUSY

The Illinois Anti-vivisection Society has been quite active during the past six months. They have sent out letters stating that a "dog bill" will be introduced at the next session of the legislature. They are now conducting a membership campaign. I enclose a copy of the latest letter they have sent out.

Mr. C. E. Richard, their executive manager, is now on full time service. He is a promoter and an advertiser, and we have information showing that George Arliss, the English actor, is paying his salary. He was the chief instigator of the trouble caused us last year.

This letter is simply to inform you what the Anti-vivisectionists are doing.

The following letter has been sent out by the Illinois Anti-vivisection Society:

THE ILLINOIS ANTI-VIVISECTION SOCIETY

Dear Member:

Dr. Samuel McC. Hamill, of Philadelphia, whose record in human vivisection has been condemned in a resolution adopted by your society and sent to President Hoover and Secretary of the Interior Wilbur, has been appointed chairman of the medical section of the White House Conference on Child Health and Protection. Dr. Hamill by his own admission stands convicted of having conducted tuberculin experiments upon inmates of St. Vincent's Home in Philadelphia, an Institution for foundlings, orphans and destitute children.

Dr. Hamill's record plainly unfits him to be entrusted with the welfare of children. In adopting a resolution against this appointment, your society feels that it has not done enough. We now appeal to you to help us finish the job and force the withdrawal of the appointment of this man.

We ask you to write a letter to President Hoover, White House, Washington, and to Dr. Ray Lyman Wilbur, secretary of the interior, voicing your protest against the appointment of Dr. Hamill to this important post. Tell the President and Secretary Wilbur that you do not believe that Mr. Hamill, in view of his record of cruelty and callousness toward the suffering of innocent little children, can safely be placed in a position where he will be able to dictate policies which may affect the welfare of all children.

At the same time, write a letter to the editor of your favorite newspaper and ask him to print the real facts regarding Dr. Hamill. Demand that the public press take official cognizance of the repeated charges —which have not been denied—of your society that Dr. Hamill is utterly unfit to hold any position affecting the welfare of children.

Please do not take the attitude that your leters will serve no useful purpose. Public officeholders are extremely sensitive to the opinion of their constituents and quick to respond to a flood of letters on any particular subject. We know that anti-vivisection societies all over the country are urging their members to write. If enough letters go in to the President and Secretary Wilbur, Dr. Hamill will be removed and another substituted.

This is a golden opportunity for us to demonstrate our strength. The cost is nothing—a few stamps and a few minutes' time. Shall we seize it and strike while the iron is hot? Do you want a man who has taken orphan children and used them as human test tubes to demonstrate some medical theory to fill a post in a conference whose sole purpose is to protect and benefit little children? Of course you don't. Then let's show the nation we are strong enough to prevent human vivisectors from attaining positions of power. Do it now.

THE ILLINOIS ANTI-VIVISECTION SOCIETY.
By C. E. Richard,
Executive Manager.

Correspondence

AN APPRECIATION OF PATRIOTIC MEDICAL PROPAGANDA OVER RADIO

Silvis, Illinois,
December 24, 1929.

Mrs. C. W. Holmes, President,
The National Patriotic Association,
Care Radio Station WGN, Chicago.

My Dear Madam: May I be supplied with the literature announced for distribution in your appreciated broadcast of this afternoon?

For some years past the Illinois State Medical Society has given official recognition to what it considers a serious national menace of communistic propaganda and work in fields of public and private health activities. There are reasons for believing that communists have selected "health work" as a point of least resistance and is especially suited for attack. Official combative efforts may be followed through the files of the ILLINOIS MEDICAL JOURNAL of the past ten years.

One of the chiefest exceptions taken in Illinois was to the inclusion into official documents for distribution by the Children's Bureau of the Federal Department of Labor of the anti-family teachings of Mme. Kollontai. Teachings of this woman, a miscalled "patriot of the soviet," resulted in augmenting Russia's generation of "wild children" and analogous outrages, of which the consequent ruin became too patently apparent for the stomach of the official soviet. Yet America's imitation of these teachings, of which one expression was the Sheppard-Towner Act, continued to be exploited in this country until the present year to create appropriation expense for our own federal and state governments. The Illinois State Medical Society claims a share in the discontinuance of that expense and propaganda and wishes contact with organizations of congenial mind.

Your own broadcast was appreciated much.

Yours very truly,

W. D. CHAPMAN, M. D.

SOUTH CHICAGO DEPARTMENT THE YOUNG MEN'S CHRISTIAN ASSOCIATION OF CHICAGO

3039 East 91st Street

December 4, 1929.

Educational Committee,
Illinois State Medical Society,
Miss Jean McArthur, Secretary,
Chicago.

My Dear Miss McArthur:

Doctor F. Balmer's health lecture under the auspices of the Educational Committee given in our lobby Tuesday evening, December 3, was exceptional and was attended by over ninety men, which is by far the largest group we have had yet. I am sure that if the talks you have secured for us in the future continue on the high caliber they have started out, our lobby will be overflowing before the series is over.

I am writing to tell you again that we appreciate very much this service that you are giving. I assure you that if ever we have the opportunity to boost the Illinois State Medical Society, we shall surely do so.

Cordially yours,

K. R. Miller,
Associate Physical Director.

"PHYSICAL IMMORTALITY"

Sixteen years ago Dr. Alexis Carrel of the Rockefeller Institute for Medical Research took some cells from the heart of a chick embryo and began growing the isolated cells in his laboratory. They are still growing. Remarked Dr. Carrel: "The cell is immortal. It is merely the fluid in which it floats which degenerates. Renew this fluid at intervals, give the cell something upon which to feed, and so far as we now know, the pulsation of life may go on forever.

"Quickly, involuntarily, the thought comes: Why not with man? Why not purge the body of the worn-out fluids, develop a similar technique for renewing them—and so win immortality?

"Although the body is composed of elements that are potentially immortal, it is and always will be subject to senility and death. Immortality is incompatible with organization. But organization is necessary for the development of a highly differential nervous system and for the appearance of mental processes.

"Death is the price we have to pay for possession of our brains. The price is not excessive because the mysterious energy which is created by the brain cells, or expresses itself through them, is after all, the greatest marvel of the universe."—*Time.*

THE DIFFERENCES IN THE SEXES

The male generally has a stronger fiber, a less complex nervous system, and is generally healthier and coarser. He has a differently organized endocrine system, dominated by a different gonad, a different sympathetic system and a completely different nervous organization. Ordinarily his thyroid is of little consequence, while hers exerts a dominating influence over her whole life. He breathes differently and does not inhale in the same manner as does the female.

In conversation with an old doctor of large experience and much wisdom, the "yes" and "no" of smoking was the subject of discussion and his reaction was summed up in the following expression: "Yes, doctor, smoking hurts boys, but it raises real hell with girls."

There's biologic difference
Of form and shape and grace
'Twen sister's pretty clinging self
And brother's freckled face;
Their eating pie, or dreaming dreams,
Or even throwing stones;
There's difference in their protoplasm,
Their flesh, their nerves, their bones,
There's difference in their destiny
That is not hard to trace.
Dear Lord! Guard her, we humbly pray,
The mother of the race.

—*Compend of Medicine & Surgery.*

HYPOGLYCEMIA AND CONVULSIONS OF EARLY LIFE

From the cases cited by J. P. Crozer Griffith, Philadelphia *(Journal A. M. A.,* Nov. 16, 1929), it appears evident that in convulsions in children there is probably a frequent association between this disorder and the existence of a low blood sugar content. Whether, however, this is an etiologic relationship cannot be determined from these investigations; and they show, further, that a low blood sugar may exist without the occurrence of convulsions. On the other hand, in the first case, which was that most carefully studied, the remarkably rapid improvement on four different occasions, and the rapid response seen also in the second case, seem to justify the conclusion that, at least in some instances, the causative relationship of hypoglycemia to convulsions may be reasonably assumed.

BILATERAL SUBMUCOUS TRANSPLANTATION OF URETERS INTO LARGE INTESTINE BY TUBE TECHNIC

Robert C. Coffey, Portland, Ore. *(Journal A. M. A.,* Nov. 16, 1929), reports twenty cases in which he has performed this operation. He believes that this operation is now complete in principle and that it is applicable for all conditions in which it is necessary or advisable to dispense with the bladder as a reservoir for urine. It is justifiable in the following cases: 1. Exstrophy of the bladder. 2. Incurable cancer of the bladder with a life expectancy of more than six months in which morphine or a palliative cystostomy

is required. 3. Inoperable carcinoma of the base of the bladder or prostate in which large doses of radium are required in order to justify a hope of cure. 4. Certain cases of early removable carcinoma in which fulguration and similar agencies are now, used. 5. Incurable tuberculosis of the bladder in which one kidney has been removed and the other remains free from tuberculosis. 6. Tuberculosis of the prostate and seminal vesicles with or without perineal fistulas. 7. Incurable vesicovaginal fistulas. 8. Extensive, incurable, multiple perineal fistulas resulting from various causes. 9. Certain cases of painful, contracted bladder resulting from infection or ulceration. 10. Traumatic injuries which make the use of the bladder impracticable.

SPINAL ARTHRITIS

Louis W. Allard, Billings, Mont. (*Journal, A. M. A.*, Nov. 16, 1929), asserts that spinal arthritis in its various types is a common affliction of adults, especially the laborer. Extensive arthritis of the spine may be found without symptoms. Symptomatic arthritis in its incipience is without roentgen evidence. The discomforts and disabilities from spinal arthritis in industrial injuries are largely due to disturbance of the partially fused joints. Arthritis subjects are prone to disability of greater or less duration from injuries that would not affect a normal person. Disabilities complicated by arthritis occasion a longer convalesence than disabilities occurring in normal spines. The victim of arthritis is not a normal man. His efficiency is lowered. He is awkward, often distracted by his discomfort, easily fatigued, and an easy prey to minor accidents. He is an industrial hazard. Patients with recognized arthritis, properly advised, may be preserved for years of usefulness, with a big saving to industrial insurance. England is developing special clinics to take care of a rheumatic problem which complicates nearly 10 per cent of the clinical material. America with similar racial and social conditions may be laboring under a similar condition.

SICKNESS IN POVERTY

The impression prevails among practicing physicians that sickness is most common among those least able to afford it. Scientific and statistical confirmation of this belief is available in the latest report of the morbidity studies of the Public Health Service at Hagerstown, Md. Some 1,800 households visited in 1921 were classified according to economic status. The classification wos checked by ten members of the research staff. Other members proceeded, during the following twenty-eight months to make an inventory of all sickness occurring in these households. The illness rates, corrected for age, during this period were as follows: well-to-do, 991 per thousand; moderate, 1,068; and poor, 1,113. Analysis by age groups shows that these differences tend to disappear in adolescence and old age, being most marked in middle age. In early infancy the order of morbidity is reversed, the children of the wealthier parents suffering more sickness than those of the poor. A satisfactory explanation is not offered for this observation. From a study of the printed curves one gains the impression that it is a distinct advantage to be able to treat with proper respect and leisurely convalescence the acute disabilities of middle age, such as rheumatic, influenzal and respiratory infections. One aspect of the study gave quite definite results: "Those families which were definitely above the average of this community in economic condition had medical attention to a considerably greater extent than the remainder of the population." —*Jour. A. M. A.*, Oct. 19, 1929.

INFLUENCE OF INORGANIC ELEMENTS ON BLOOD REGENERATION IN NUTRITIONAL ANEMIA

The technic employed in the experiments on rats made by Victor C. Myers and Howard H. Beard, Cleveland (*Journal A. M. A.*, Oct. 19, 1929), was essentially that of Hart and Steenbock. Young rats were placed on a diet of whole milk for six weeks after weaning. When the erythrocyte count was about 3 to 4 million per cubic millimeter and the hemoglobin content 3 to 4 Gm. per hundred cubic centimeters, additions of various supplements were made daily to the milk. The experiments show that when growing rats have been rendered anemic by an exclusive milk diet, and 0.5 mg. of iron is given daily, traces of manganese, nickel, copper, germanium and arsenic all have a definite supplementing action on hemoglobin regeneration. All these elements, with the exception of nickel, have at some time in the past been recommended therapeutically in the treatment of anemia. The present observations are in large measure an experimental verification of older clinical observations.

DIET IN ETIOLOGY AND TREATMENT OF STERILITY

Donald Macomber, Boston (*Journal A. M. A.*, Oct. 19, 1929), asserts that there is a large body of evidence, both experimental and clinical, which shows that alterations in diet actually do produce sterility. An analysis of the diets eaten by 206 sterile women shows that they deviate in many important ways from normal. The average diet for the 206 women was found to be 71.8 Gm. of protein, 80.5 Gm. of fat and 227 Gm. of carbohydrate, with a total of 1,968.9 calories. A large number of these women show evidence of nutritional disturbances. By increasing the protein in the diet about 10 per cent, likewise the total calories, forty of the 206 women have become pregnant to date, even though practically all of them were seen for the first time within the last two years, and this result has occurred, at least in part, as the result of changes in diet and such other measures as the increasing of exercise, the taking of endocrine medication or the treatment of anemia. It seems to Macomber that regulating diet is a means of treating sterility which one cannot afford to neglect.

Original Articles

LOSING LIBERTY JUDICIALLY

A Law by Which an Unschooled Legislature Dictates to the Science of Medicine, and Takes From a Scholar His Brains Cannot Be In Consonance with Liberty

A REVIEW

CHARLES B. REED, M.D.
President of the Chicago Medical Society
CHICAGO

This is the title of a book of two hundred fifty pages recently published by Thomas James Norton of the Chicago Bar. The author cites a number of instances in which individual liberty has been lost judicially, but two cases—the regulation and physician's prescriptions and the Sheppard-Towner Act are so definitely medical problems at the present time that the writer has sought opportunity to quote the book quite freely for our professional enlightenment. Most of the review is couched in the author's own words, both for truth and clarity. At the outset Mr. Norton states that his discussion has to do solely with the Power of Government in the United States under the Constitution, and the Liberty of Man under the same Instrument.

"In dealing with prohibitory laws and decisions no element of *wet* or *dry* is permitted to enter, for with wet or dry, Government has no proper concern whatever. It did, however, have a duty to protect the weak or irresolute man and his family, and society from the manifest perils of the public saloon. *But* its Constitutional obligation was even more imperative to let the self reliant and capable man alone."

"The first question respecting prohibition laws is whether, in the performing of a duty to a class who need the protection of Government, the liberty of those who do not need that aid and whose conduct never contributed to the conditions which prohibition was instituted to cure, can be frittered away by judicial decisions or destroyed by legislative action."

After a scholarly historical survey, Mr. Norton inquires—"what was meant by Liberty in the Preamble?" (of the Constitution) and what is Liberty, and quotes John Stuart Mill as follows:

"The aim, therefore, of patriots was to set limits on the power which the ruler should be suffered to exercise over a community and *this limitation was what they meant by Liberty.*" Liberty, therefore, is *limitation* on Power. And so wherever a limitation set by the people for the restraint of Government is *removed,* their liberty is lost."

After amply confirming this position by historical examples, the author quotes Blackstone, whose work is the foundation of our laws, as follows:

"This natural Liberty consists properly in a power of acting as one thinks fit, without any constraints or control, unless by law of Nature; being a right inherent in us by birth and one of the gifts of God to man at his creation when he endowed him with the faculty of free will." Norton now says, "Political, therefore, or civic Liberty, which is that of a member of society, is no other than natural Liberty so far restrained by human laws (and no farther) as is necessary and expedient for the general advantage of the public."

And Lord Acton—"By Liberty, I mean the assurance that every man shall be protected in doing what he believes his duty against the influence of authority and majority, custom and opinion."

The State is competent to assign duties and draw the line between good and evil *only* in its immediate sphere. In ancient times the State absorbed authorities not its own, and intruded on the domain of personal freedom. In the Middle Ages it possessed too little authority and suffered others to intrude.

Modern states fall habitually into both excesses. The *most certain* test by which we judge whether a country is really free is the amount of security enjoyed by minorities.

Thus the Supreme Court of the United States checked the legislatures of several states when they undertook to tell students what they could study, and teachers what they could teach on the ground that such measures were *necessary* and *expedient* for the general advantage of the public.

In finding or claiming to find what is "necessary and expedient" *the legislature cannot disregard common knowledge.*

The police power over health, morals, safety, and general well-being of the people stops where constitutional limitations begin. Thus the police power could not authorize two-thirds property

owners to fix boundary lines for others whether to the damage of their property or not.

Nor was the State permitted by the Supreme Court to forbid attendance at any but public schools, in order to close schools in which religious precepts were taught.

After discussing the necessity for an independent and high minded judiciary and whether Government can be effectively *limited,* Norton places the burden of limitation in the Supreme Court and the Judiciary.

This view is also definitely put forward by Professor Dicey of Oxford who says: "The legal supremacy of the Constitution is essential to the existence of the State. The glory of the founders of the United States is to have devised or adopted arrangements under which the Constitution became in reality as well as name, the supreme law of the land.

This end they attained by adherence to a very obvious principle and by invention of appropriate machinery, for carrying this principle into effect."

The legal duty, therefore, of every judge is clear. He is bound to treat as *void* every legislative act, whether proceeding from Congress or the State legislatures which is inconsistent with the Constitution. Now the question arises whether the Courts have stood firmly for the Liberty of man against the pressure of legislatures, "blocs" and public sentiment.

The case of Mugler versus Kansas in 1883, and affirmed by the U. S. Supreme Court, upheld an absolute prohibitory law of that State.

By an absolute prohibitory law is meant one which takes no account of the rights and liberties of those persons who are not constitutionally subject to the power of the State, those in other words who are competent to use as a beverage what has been recognized, at least since Jesus made wine, as an unobjectionable drink if taken in moderation; and who have, therefore, the indubitable right to purchase, carry and consume the same.

But the police power, which has to do with the health, safety, morals and general well-being of the people, as well as the detection and punishment of crime, has in later prohibitory laws put the inebriate and the sober in one classification and treated them accordingly.

Of course the strong and competent must yield convenience (not right) when reasonably necessary for the help of the weak. But regulation for the benefit of one cannot work deprivation of right or property for another. While some ordering is proper, nevertheless "such a Constitution would afford no warrant for such an exercise of legislative power, as under the pretense and color of *regulation,* should subvert or restrain the right itself." (Chief Justice Shaw of Massachusetts.)

Norton has thus defined and supported the definition of Liberty and the inalienable sources thereof. He has outlined the duties of State, in reference to the preservation of such liberties, and he has of necessity allocated to the Judges of the State and United States Courts the task of upholding these liberties against all encroachments and then he quite logically inquires whether the judges have fulfilled this obligation.

He asks whether the Constitutional guarantees of the Liberty of man have been fairly interpreted, and justly, and with even hand fully and fearlessly enforced by the Courts against the power of the Government.

The answer to this question is *NO.*

"In November, 1926, the Supreme Court of the United States upheld the Act of Congress of November 23, 1921, forbidding physicians to prescribe to one person within ten days more than one quart of vinous liquor, or any vinous or spirituous liquors containing separately or in the aggregate more than one-half pint of alcohol."

The act forbids also any physician to issue more than one hundred prescriptions within ninety days unless he has made it clear to a Commission that for some extraordinary reason a larger amount is necessary.

Four of the nine justices dissented on the ground that the eighteenth amendment gave the Nation a police power over liquors for *beverages purposes only.*

The first section of the Amendment reads "after one year from the ratification of this article the manufacture, sale and transportation of intoxicating liquors . . . . for beverage purposes is hereby prohibited." The only subject presented to the States for ratification by their legislatures was liquors for beverage purposes. The Court held that the Amendment did not displace or cut down consistent State laws, but on the

contrary, removed from the path of the states obstacles which prevented more stringent legislation; all the police power that the states had before the Amendment, they retained, both as to liquors for beverages and *liquors for medicine.*

With the propensity to meddle in and to assume jurisdiction in the affairs of the states which has more and more characterized Congress in recent times, it proceeded in less than two years after the adoption of the Amendment to step into the police field of the states and snatch from them their inherent power over liquors for medicinal purposes.

The Committee of the House of Representatives gave as reasons: "Unless some limit is placed upon the amount of such liquors that may be prescribed, a number of physicians who do not have the high ethical standards of the large majority will abuse the privilege. Evidence was presented to the Committee of physicians who issued hundreds of prescriptions within a few days when the total of other prescriptions was a negligible number."

Did the listening congressmen send the complainants to the grand jury, or to the prosecuting attorney of their own state whereas the report shows "most states have more stringent provisions than the one in Section 2 of the Amendment whereby the offending physicians could be punished by proper authority. They did not. Why did they go to Washington at all rather than to the state authorities. If the states lacked sufficient law for regulating the conduct of physicians why not work for such a law in the State itself? Under no circumstances whatever, should Congress have the presumption to invade the states in regard to liquors for *medicinal purposes.*" To the reviewer it is suggested that if a mayor is given specific authority to regulate street-car traffic, how can that give him the power either to stop the operation of the lines altogether because the feeble minded may be run over, or to buy machinery, erect power houses, or form combinations with other transportation lines, and otherwise spend the stockholders' money without their consent. It is not admitted that a government has such power as Congress exercised here to dictate to competent and honorable physicians. It can deal with physicians only as it deals with other men—when he has violated the law.

It is against the policy of law to enjoin the Commission of Crime. The presumption is that a man will not commit crime, and he is therefore not disturbed until he has violated law. This principle is the basis of the liberty of the press and of speech.

The censorship of former times *before* publication in order to forestall libel or other wrong was discarded over three hundred years ago. The law takes a man not *before* he has committed his violation, but after.

The Act of Congress is, therefore, at war with the best legal thought and practice. Yet in a footnote the Supreme Court cites a list of states statutes regulating prescriptions by physicians.

A law by which an unschooled legislature dictates to the science of medicine, and takes from a scholar his brains cannot be in consonance with Liberty.

The House Committee in reporting the bill made it plain that the evil to be corrected was small. It said "a *number* of physicians who do not have the high ethical standards of a *large majority* will abuse the privilege". The large majority are above criticism. But even if this large majority was prescribing liquor wrongfully the question would still remain whether Congress could take the correction of that evil out of the hands of the States by any grant of power in the Eighteenth Amendment.

A careful examination of the powers conferred upon Congress by Section 8, Article I of the Constitution, and the careful statement in Section 9 of the powers *denied* to it, takes from this procedure its legality. Over and above all is the Tenth Amendment, which reads:

"The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are *reserved* to the States respectively, or to the people."

Therefore, because some states may not look carefully after the professional conduct of physicians it does not mean that the power to supervise has been lost to those or other states and that the Nation may, therefore, pick it up and use it.

The Tenth Amendment recognizes latent or unused powers in the people, and in the states, and it warns the Nation to let them alone. The Nation can exert no power not conferred upon

it by the people in their Constitution. By the Eighteenth Amendment the people conferred upon Congress "concurrent power" with the States to control "the manufacture, sale or transportation of intoxicating liquors for *beverage purposes.*" Just as explicitly by that language the control over liquors for medicinal purposes was excluded. When the Eighteenth Amendment authorized the Legislative Department (Congress) to deal with *beverages,* that was the end of its agency on the liquor subject.

In applying the Constitution to practical affairs it is more important that limitations upon Government be liberally construed in order to give them effect than it is that grants of power to Congress be liberally construed. The Tenth Amendment is a *grant* of *power* to the Nation the like of which it never had before.

As it was in derogation of the American Constitutional principle, it should have been very strictly construed in the interest of the State at home. When these two amendments came in conflict in the case of physicians all doubts should have been resolved in favor of the Tenth and the governmental integrity of the State. The unqualified language of the Tenth Amendment forbids any construction of any part of the Constitution in derogation of the sovereignty of the State where there is no plain grant in derogation of it. The reservation to the States of full power over medicine was just as distinct as the grant to the Nation of partial power over beverages.

To what purpose did the Eighteenth Amendment limit action by Congress to *beverages* if that limit might be passed at pleasure by Congress and the Control of Medicines assumed.

The Supreme Court thought the Act of Congress relating to physicians within the States was *appropriate legislation*—under Section 2 of the amendment—which says, "Congress and the several states have concurrent power to enforce this article by appropriate legislation". Finding the legislation *appropriate* the Supreme Court said "When the United States exerts any of the powers *conferred* upon it by the Constitution no valid objection can be based upon the fact that such exercise may be attended by some or all of the incidents which attend the exercise by a State of its police power." The statement assumed that "the United States had received that power—which is the point at issue and the one on which four (4) justices dissented."

Secondly, it assumed that a State may, by its police power, constitutionally substitute its crude judgment for the scientific opinion of a physician. Can it? The State may punish a physician for dealing in any way in liquors as beverages, but can it control his judgment as a physician? If it *can* what does his *Liberty* mean?

An Act to compel all physicians to be good —as legislatively understood—is cut from the same piece of power as the Conventicle Acts "whereby the Tudors and Stuarts required people to worship in the way which legislators had selected as best for them and the country."

In section 2 of the Eighteenth Amendment we have the only example in which the Nation and the States have concurrent power of enforcement. All other amendments requiring "appropriate legislation" are enforcible by the Nation alone. But here the States did not surrender their police power to the Nation. Power was given to the Nation which it did not before possess, but the States did not abandon theirs. They retained the jurisdiction to legislate on the subject of liquor for both beverage and medicinal purposes which they had inherently possessed. The amendment authorized Congress to *cooperate* with them in legislation for the control of beverages only.

The Committee reporting this bill said that "this legislation will work no hardship upon the profession of medicine because most of the states have more stringent provisions." Neither would the tax on tea have been a hardship on the American colonists but they resented the encroachment like true born fighting men and flew to arms in defense of the principles of the British Constitution, on which our present liberty is based.

Convenience is not the measure of constitutionality. What Congress should have considered was not the comfort or discomfort of the physicians but the Tenth Amendment which was intended to preserve the States forever from national encroachment and the first section of the Eighteenth Amendment by which their police powers over liquors both for beverage and medicinal purposes was explicitly left to them.

The least understandable aspect of this and similar legislation is that members of Congress

should be so ready and active to strip their respective states of their constitutional prerogatives, for as a matter of fact nation-wide prohibition was coming as fast as the people were ready for it, and in something like the right way. The Act of Congress, respecting physicians is itself an illustration of the growing federal tendency to reach out for power.

"The sole end for which mankind are warranted, individually or collectively," wrote John Stuart Mill, "in interfering with the liberty of action of any of their number is self protection." The only purpose for which power can be rightfully exercised over any member of a civilized community, against his will, is to prevent harm to others. His own good, either physical or moral is not sufficient warrant. He cannot rightfully be compelled to do or forbear because it will make him happier, because in the opinion of others, to do so would be wise or even right.

"These are good reasons for remonstrating with him, or reasoning with him, persuading or entreating, but not in compelling him or visiting him with any evil in case he does otherwise. To justify that, the conduct from which it is desired to deter him must be calculated to produce evil to someone else."

Judge Taney's observation that a state has the power of regulating and restraining (the liquor) traffic is conceded. It has always been conceded. The question under consideration here is the constitutional power to *stop* it absolutely as to capable and temperate men.

So far has Congress gone in violating the Tenth Amendment. The next step as suggested by Mr. Norton may well extend to other forms of liquid and food. If it is criminal to possess liquor or to transport it in a valise, then in further protection of the "peace and security of society" as the Supreme Court says—whenever a man succeeds in eluding the vigilance of the enforcement snoopers and takes a drink it must be forcibly withdrawn from him by a stomach pump "for the protection of the community."

To those who wish further enlightenment on losing liberty judicially as represented by the oleomargarine law of Pennsylvania, by the legal confiscation of other people's money as in the Depositor's Guaranty Fund of Oklahoma, in the Harrison Narcotic Law, and the Public Sequestration of Private Property by the Erie Railroad in New Jersey, the unwarranted expansion of the White Slave Act to cover other forms of misdemeanors and various similar legislative encroachments on the Courts the reader is referred to Mr. Norton's interesting book.

The next case that most nearly concerns the medical profession is the Sheppard-Towner Law. "In 1923," says Mr. Norton, "the commonwealth of Massachusetts and an individual living in the District of Columbia endeavored to have the Supreme Court of the United States pronounce upon the Constitutional power of Congress to pass (Nov. 23, 1921) an act for the promotion of the Welfare and Hygiene of Maternity and Infancy and for other purposes, known while pending as the Sheppard-Towner Bill."

They did not succeed and upon the expiration of the five year period the law was reenacted. As the matter stands in the Courts Congress is enabled now to spend the public funds for any excursion into Utopia which it may care to take. The Act appropriated $480,000 for the first year. For each of the five years $5,000 was appropriated to each of the forty-eight states to cover the donation of a like appropriation of its own.

A Board of Maternity and Infancy was set up and the Children's Bureau charged with the administration of the Act.

The legislature of each State was required to make formal acceptance of the donation, and to create a state agency of tax consumers.

Massachusetts made several contentions against the constitutionality of the legislation, among them that it assumes powers not granted to Congress. This point should have been decided in one of the two cases disposed of together. Both the Massachusetts case and Mrs. Frothingham's (District of Columbia) argues the point that Congress was without power to appropriate money for such purposes.

That Congress can use money only in exerting the several powers specifically granted by the Constitution with those implied powers which clearly attend a granted power as the power to establish a national bank resulted from the money and taxing clauses.

There was as solid a question as has ever been resolved by John Marshall. But it was not de-

cided. The almost unanimous opinion is that Congress is lacking in the power to raise and spend money except in carrying out the grants conferred upon it in respect to national and international affairs as counsel for Mrs. Frothingham contended. The Supreme Court found it has no jurisdiction without discussing here the status in Court of the Commonwealth of Massachusetts, and its right to protect its citizens as taxpayers against an unconstitutional appropriation of funds even where the legislature had not accepted the sop offered by Congress. It is clear that Mrs. Frothingham, as a taxpayer, took a step which the Supreme Court has upheld in many cases arising in the states.

A taxpayer can enjoin in his own behalf and in the interest of all others similarly situated the execution of an illegal scheme of taxation and expenditure. Upon the showing of unconstitutionality the officers whose duty it is can be restrained from spending the funds. Mrs. Frothingham brought suit to prevent the Secretary of the Treasury from paying out funds according to the provisions of the Maternity Act.

Though admitting the general law in such cases to be as stated, the Supreme Court said the right of a taxpayer thus to "enjoin the execution of a federal appropriation act on the ground that it is invalid and will result in taxation for illegal purposes, has never been passed upon by this Court."

"The relation of a taxpayer of the United States to the Federal Government is not the same as the state" says the Court. "His interest in the moneys of the treasury—partly realized from taxation and partly from other sources —is shared with millions of others; is *comparatively minute and indeterminable;* and the effect upon future taxation, of any payment out of funds, so remote, fluctuating and uncertain that no basis is afforded for an appeal to the preventive powers of a Court of Equity."

If a taxpayer in New York with a population in 1920 of over ten millions, can in an injunction suit stay the operation of an act of the legislature, violative of the Constitution of the State or United States (and it has long been settled that he can), why should a taxpayer of the Nation with a population of one hundred five million be denied injunction relief from the application of an invalid act of Congress.

The interest of the taxpayer in New York is "comparatively minute and indeterminable" for one person out of ten million is very small indeed, but constitutionally he is or should be as large as the whole mass. Just where does the distinction operate between one in ten million and one in one hundred five million?

It is erroneous to state that "the relation of the taxpayer of the United States to his Federal Government is very different from that of a taxpayer to his City or State in all of which relations the Courts of Equity have in countless cases given him relief against illegal schemes of spending.

Nor is it important that the taxpayer's state might never accept the offer of Congress—he has the right to object to the use of national funds in *every state* where spent under an unconstitutional law.

Passing from the "comparatively minute and indeterminable" interest of the taxpayer among one hundred five million (which it seems would not be so among ten milion) the Court expressed apprehension of confusion. "If one taxpayer may champion and litigate such a cause then every other taxpayer may do the same not only in respect to the Statute under review but also in respect of every other appropriation act and statute whose administration requires outlay of public money and whose validity may be questioned."

First, even if it were so, there would be no ground for denying relief if the law were unconstitutional. Second, experience in the States shows that the fear is not warranted. Third, no Court will entertain a suit to test the validity of a statute when another Court has already taken "jurisdiction."

The result of the decision is that since a state cannot maintain a suit to enjoin a Federal officer from spending money under an unconstitutional act of Congress, and since the interest of the taxpayer is so microscopic as to leave him remediless, the Congress is practically licensed to do as it pleases.

"The conclusion drawn from this study," says Mr. Norton, "is that the Judicial Department of our Government is as the writers of the Constitution believed, indispensable to Liberty, and in need always of the support of the people. Without that support it will eventually be weak-

ened if not broken, for in our own supposedly enlightened time it has been most viciously attacked with an incredible volume of popular applause by both the Executive Department and the Legislature."

Only a people indoctrinated by the schools with our philosophy of government can be capable of holding the President and Congress where they belong through force of an enlightened and positive opinion. The Judical Department has for a century and a quarter met the purpose for which it was established and generally kept the Government in its constitutional course. Thereby the American people were enabled to reach their eminence among the Nations. Any curtailment of its prerogative or diminution of its conferred powers would be a move toward suicide, the end of the Republic which Macauley prophesied, and the only one that Abraham Lincoln feared.

RECENT ADVANCES AND THE PRESENT STATUS OF TREATMENT OF SYPHILIS OF THE NERVOUS SYSTEM*

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The constant change in medical advancement has neglected until the present generation the neurosyphilitic patient as an individual who demands special methods of treatment. Old specifics when administered more or less periodically over a period of years kept the syphilitic in fair health. Until the last ten years the paretic was doomed, the tabetic had almost as good a chance for relief as at present, and the patient with optic atrophy almost invariably became blind. The outlook for these unfortunates is now more hopeful with our present day methods.

Since Schaudin discovered the spirochete of syphilitis (1903) and Wassermann designed his test (1906) investigators have made strenuous efforts to find chemicals that will sterilize the body of these organisms without detriment to the host. The protoplasm of the spirochete is too similar to the human tissues to give an opportunity for a single sterilizing dose of any of our drugs as Ehrlich hoped his salvarsan (1909) would afford. Progress is still being made each year, but few of the advances are epoch making.

Morphology. It is worth knowing, but affords faint satisfaction to understand the lack of success in certain patients. Our failure is apparently due to anatomical causes. Since syphilis is a disease of connective tissue, or at least prefers lodgement in tissue of mesenchyral origin, it is important to take up some morphological considerations concerning the central nervous system. About the third week of embryological life the neural tube closes over by an up-growth of mesoblast in the medulary fold. Mesenchymal cells attach themselves to the neural tube forming a primary sheath for it. The dorsal branches of the segmental arteries and veins vascularize it. When the vessels perforate the sheath and nervous tissue, mesenchymal tissue is thus added to an epiblastic structure. By the middle of the second fetal month this sheath has been cleft into the meninges. With these facts before us we are in position where we can better understand the clinical and pathological divisions of neurosyphilis.

Pathology. The first and most common type is the meningo-vascular syphilitis. This is in the strictest sense not a disease of the nervous system but a disease of the blood vessels and their accompanying mesenchymal tissues. In more common parlance the lesions are in vascular and perivascular regions of the meninges and the central nervous system and not directly in the neural parenchyma at all. They are in the tissues carried into the nervous system by the mesenchymal invasion just described. Such lesions are more accessible to the effects of drugs then when they are located in the nervous elements and beyond connective tissue barriers.

The second or parenchymatous type is commonly designated as tabes dorsalis and paresis. They have passed through the meningo-vascular stage and the spirochetes, their toxins, or the indirect effects of both, have caused actual degeneration or destruction of the nerve elements.

Tabes dorsalis is usually considered to be a primary degeneration of the posterior columns of the spinal cord induced by lesions at the point of entrance of the posterior root fibers.[1] Study of the lesions of tabes places the primary inflammatory lesions in the posterior roots. There

*Read before the Williamson County Medical Society, Herrin, Ill., Sept. 12, 1928.

are also degenerative changes in the peripheral ends of the sensory fibers and also in the collateral endogenous tracts in the spinal cord. It is to be noted that in tabes the most severe lesions are in the sensory nerves. The retina and optic nerves are common sites of involvement. Not all tabetics will suffer from optic neuritis or atrophy, nor will all meningo-vascular or paretics patients be free from its more or less relentless progress once it starts.

Paresis is essentially the picture of cortical degeneration with increased vascularization of the cerebrum. Pachymeningitis or leptomeningitis with adhesive processes are commonly found postmortem. The cortex is thinner than normal and the various cell layers are much thinned out or entirely absent. Association fibre tracts suffer indirectly from disuse or directly from the invasion of spirochete and the blighting effect of defective circulation. The spirochtes may interfere with cerebral function by endarteritic, perivascular lesions or by direct invasion of the parenchyma. The connective tissue along the blood vessels shows more reactive tendency than the neuroglial tissue which suggests the nerve elements. Thus one can account for the relatively little reaction of defence to the spirochete in contact with the ganglionic cells or their processes in the brain. The possibilities of spontaneous remissions or the effects of treatment depend on how far advanced the parenchymatous lesions are, or whether the nerve cell functions are impaired secondarily to the effects of endarteritic or perivascular infiltration. Clinically the patient may have identical symptoms if the nerve cells are out of function anatomically or physiologically. It is to be expected that the improvement might occur spontaneously or from the effects of treatment in the patient whose cortical cells are impaired in the physiological sense; i. e., perivascular infiltration or endarteritic lesions. Formerly it was often said that if a patient with a paretic symptom regained his mentality as a result of treatment that he was not a paretic. Such a patient is a true paretic. but in that stage of physiological functional impairment that procedes the anatomical destruction of the nerve cells.

For the sake of brevity remarks concerning the diagnosis of neurosyphilis and symptomatology will be omitted because nothing will be added to the interest of the subject of this talk and will take us somewhat a-field.

Treatment. The treatment of syphilis has long been based on the use of so-called specific drugs. It must be admitted that these specifics are specific only to a degree. They will hold in abeyance the progress of the disease and may even cure certain cases. It would perhaps be better to regard these drugs not so much as absolute specifics but merely the best and nearest specific treatment we have for syphilis, and we are, therefore, not to overlook any benefit the patient may derive from multiple therapy.

Just as in generalized syphilis, mercury, bismuth and arsenicals are used in neurosyphilis. It is important not to overtreat the neurosyphilitic, especially in the early weeks of treatment. Nervous Herxheimer reactions occur just as surely and with just as ultimate seriousness as in visceral syphilis. The more acute and more serious may cause the death or serious relapse of the patient. The less serious may cause marked exaggeration of mental changes which takes weeks of careful treatment to overcome.

In our experience in about four hundred cases of neurosyphilis, tryparsamide is the therapeutic sheet-anchor. This drug is a therapeutic enigma. It is not spirocheticidal[2] yet it renders the nervous system more able to relieve itself of perivascular infiltrations and has a beneficial tonic effect on the body as a whole. If given too energetically the first few months, harm usually results in the form of relapses or ocular disturbances. The drug easily penetrates through the meninges and relatively large quantities of arsenic may be found in the spinal fluid.[3] Thus we have a drug that is a boon to the meningo-vascular and paretic patients and which effects the spirochete in an indirect manner. To this beneficial effect should be added the spirocheticidal effect of mercury, bismuth or the arsphenamin—to add a curative effect to the tonic effect. It should always be the aim to treat the patient rather than the disease and not to force the patient into a routine course of treatment regardless of his suitability for the prescribed routine. Whenever possible the patients were routinized as follows:

Week	Tuesday	Friday
1	*Bich. .....0.015 gms. (gr. ¼)	Neo. .....0.3 gm.
2	Tryp. 1.0	Bich. 0.03
3	Neo. 0.45	Tryp. 1.5

4	Bich.	.....0.06	Neo.	.....0.6
5	Tryp.	.....2.0	Bich.	.....0.006
6	Neo.	.....0.75	Tryp.	.....2.5
7	Bich.	.....0.06	Neo.	.....0.9
8	Tryp.	.....3.0	Bich.	.....0.06
9	Neo.	.....0.9	Tryp.	.....3.0
10	Bich.	.....0.06	Neo.	.....0.9

*(Bichloridol, Metz. Given intra-muscularly. This may be replaced by bismuth preparation given in the same manner.) Tabetic patients are more benefitted by the use of mercury cyanid 10 to 20 mg. intravenously.

After the end of the first course, a rest period of four to six weeks is given when treatment is renewed. This time the drugs may be started in somewhat larger dose but they are not to be increased above the maximum amounts indicated. The clinical results of such treatment are summarized in the following tables for sake of brevity. (Table 1).

It was then thought that a more severe test of our treatment would be on an economic basis since a patient may be clinically well but unable to return to his work. Table 2 gives an indication of the results from this viewpoint. (Table 2).

It is worth while to take up under a separate heading one of the most relentless and tragic complications of neurosyphilitis; namely, optic atrophy. Oculists estimate from 6 to 15 per cent of all blindness[5] is caused by syphilis. The literature indicates that from eleven to forty-one per cent of untreated neurosyphilitic patients have visual disturbances. Lillie's[6] series had some sort of ocular disturbances in 50 per cent of patients. He found that treatment with the arsphenamine diminished the incidence of ocular lesions and that tryparsamide (in spite of its rather bad reputation) was even more effectual than the arsphenamines. Tables 3 and 4 summarize the findings in my experience, showing that well over half of the patients can either be arrested in their downward progress or actually somewhat improved by tryparsamide theraphy (Tables 3 and 4).

During the past three or four years another method of treatment is being used. I have had a slight degree of experience with this method of intracysternal injection in desperate cases. Gifford[8] has had the largest experience with this form of treatment and considering the prognosis of his patients his results have been brilliant. He has been able to arrest and improve patients who were doomed to blindness.

The treatment of neurosyphilis by malaria has been popularized during the past four years. The exact mechanism of action is not known and about thirty per cent of the patients in collected statistics are much improved, as contrasted to about forty per cent in tryparsamide statistics. On the one hand unwise use of tryparsamide may cause blindness, but malaria causes death in ten to thirty per cent of paretic patients. Tabetics are not notably improved by malaria or any other method. Solomon[9] has used sodoku, or Japanese relapsing fever, for the same purpose and got the same general results without the untoward results of malaria. Recently Schamberg[10] has been studying the effects of hot baths on syphilitic patients. We are making observations on a small series of Wassermann-fast neurosyphilitics. Thus far results have been encouraging for the use of hot baths as an adjunct treatment but it is still too early to commit oneself in recommending their use.

SUMMARY

The treatment of neurosyphilis is now in a gradually improving status. Meningo-vascular types are for the most part successfully treated with tryparsamide and other anti-syphilitic drugs. Tabes dorsalis is handled slightly better than a decade ago. Paresis has been given a different outlook by the advent of tryparsamide and malarial therapy. One is no longer justified in concluding that the paretic patient is doomed until he has had one or the other method tried. Optic atrophy is apparently on the threshold of more successful methods of treatment.

TABLE 1

	Clinical						Serological Date available				Ocular Disturbances*	
No. Diagosis	Improved	Per cent	Arrested	Per cent	Worse	Per cent	Improved	Per cent	Unimproved	Per cent	Subj. Per cent	Ob. Per cent
Meningo-Vasc												
93 Lues												
Active (1)	44	83.0	8	15.1	1	1.8	23	60.5	15	39.5	2.2	..
Inactive (2)	21	52.5	11	27.5	8	20.0	16	69.7	7	30.3	..	7.5
74 Tabes Dorsalis												
Active	22	64.7	11	32.3	1	3.0	13	61.9	8	38.1	..	2.9
Inactive	12	30.0	20	50.0	8	20.0	8	40.0	12	60.0	2.5	12.5
63 Paresis												
Active	32	82.0	5	12.8	2	5.0	20	66.6	12	33.4	2.5	2.5
Inactive	5	20.0	8	33.3	11	45.8	12	70.6	5	29.6	12.5	4.1
230 Totals	136	59.1	63	27.4	31	13.4	92	61.7	57	38.2	3.0	3.5

Ocular disturbances due to tryparsamide.
Including dead from all causes.
(1) On treatment.
(2) Off treatment.

TABLE 2

Economic Status of Patients Before and After Treatment

Diagnosis	Beginning of treatment: Not working		Working part-time		Working full time		After being treated: Not working		Part-time working		Working full-time	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Central Nervous System Lues	46	49.4	23	24.7	24	25.8	16	17.2	15	16.1	62	66.6
Tabes Dorsalis	47	63.5	9	12.2	18	24.3	32	43.2	13	17.5	29	39.2
Paresis	61	96.8	1	1.6	1	1.6	25	39.6	17	27.0	21	33.3
Total	154	66.9	33	14.3	43	18.7	73	31.7	45	19.5	112	48.7

TABLE 3. MANIFESTATIONS IN NORMAL PATIENTS

	Patients: Number	Per cent
Eye complications in normal patient	8	5.2
Blurred vision sufficient to omit treatment temporarily	4	2.6
Moderate visual field constriction	3	1.9
Marked visual field construction	5	3.2
Improved when treatment was withdrawn	3	1.9
Unimproved when treatment was withdrawn	2	1.3

TABLE 4. MANIFESTATIONS IN ABNORMAL PATIENTS

	No.	Worse: No.	Per cent	Improved: No.	Per cent	Unchanged: No.	Per cent
Abnormal patients treatment	27	10	37.0	4	14.8	13	48.1
Optic atrophy*	16	4	27.4	2	12.5	8	50.0
Slightly or moderately constricted fields	10	4	40.0	2	20.0	4	40.0
No atrophy: Chorioretinitis	1	0	0	0	0	1	100.0

*Three patients became blind; one improve; one's progress hastened by treatment; the other neither hastened nor retarded.

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SCARLET FEVER*

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Six years ago, we began the publication of a series of experiments which established a specific type of hemolytic streptococcus as the cause of scarlet fever. In these experiments, it was shown that the scarlet fever streptococcus produces a potent soluble toxin which is responsible for the toxemia, nausea and rash, and that recovery from the disease with subsequent immunity depends on the production of an antitoxin. This antitoxin is capable of neutralizing the scarlet fever toxin in vitro. The conclusions as to the etiology, specific toxin and antitoxin of scarlet fever have been verified by reports too numerous to detail here, published in this and other countries. They include the work done by Nicolle in the Pasteur Institute at Tunis where all of the crucial experiments were repeated, including even the production of experimental scarlet fever in human beings.

The manufacture of soluble toxins by streptococci was a new conception. It had been thought that true toxins were concerned in comparatively few diseases such as diphtheria, tetanus, botulisin and some forms of dysentery; all of which are caused by bacilli. The discovery that soluble toxins may be produced by streptococci opened a new field for medical research in which many investigators are now engaged in attempts to demonstrate and differentiate toxins from various kinds of streptococci.

Scarlet fever toxin and the corresponding antitoxin have furnished the means for controlling the disease through the development of:—

First—A method of identifying scarlet fever streptococci.

Second—Control of quarantine by means of nose and throat cultures on blood agar plates.

Third—A skin test for determining susceptibility to scarlet fever.

Fourth—A method of active immunization of susceptible persons.

Fifth—An antitoxin specific for scarlet fever for use in the treatment and in the prevention of the disease.

Results are now available from observations made during the past six years in a series of

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32,440 persons on whom skin tests were made and on 11,584 susceptible persons who were immunized against scarlet fever by injection of graduated doses of the sterile toxin and on groups of susceptible individuals found to be infected after exposure who were given prophylactic doses of antitoxin. All of these persons were exposed to scarlet fever in one or more epidemics. Results are also available from a series of 967 cases of scarlet fever in which the antitoxin was employed therapeutically.

The technique of the skin test for susceptibility to scarlet fever is exacting. Among the common sources of error are inadequate syringes and needles; attempts to sterilize the syringe and needle with alcohol, which precipitates the minute amount of toxin in the skin test solution; failure to replace the water left in the needle after boiling with skin test solution by expelling at least one-tenth cubic centimater of solution through each fresh needle used; boiling the syringes and needles in alkaline tap water instead of distilled water; estimating the amount of skin test solution injected by the size of the wheal produced instead of accurate measurement by graduations on the syringe; subcutaneous instead of intracutaneous injection; and failure to observe the reaction between 18 and 24 hours after the test is made. The commonest error of all is interpreting positive reactions as negative. The almost universal tendency to regard slightly or even moderately positive reactions as negative may be due to familiarity with the Schick test which is usually interpreted as negative unless there is induration. Skin reactions with scarlet fever toxin are never indurated. They should be observed in a bright light between 18 and 24 hours after the injection. Observations made after 24 hours are not reliable. The slightest flush or reddening, no matter how faint the color, constitutes a positive reaction if it measures as much as ten millimeters in any diameter.

The reliability of the skin test in determining susceptibility to scarlet fever is shown by the results in 20,856 persons with spontaneously negative reactions. All of these immune persons have passed through one epidemic of scarlet fever and some have gone through several epidemics without contracting the disease; with the possible exception of one boy who desquamated on the feet and gave a history of having had a sore throat. The most severe test of the skin reaction is found in a group of 2,157 pupil nurses and internes who were allowed to go on contagious disease services when their skin tests were found to be spontaneously negative. In spite of prolonged and intimate exposure to scarlet fever, none of this group contracted the disease.

New born infants frequently show negative skin reactions which become positive during the first year of life. After early infancy, the incidence of immunity to scarlet fever depends on conditions which favor exposure to the disease. Immunity is not related to age or sex except indirectly as these factors influence the frequency of contact with other people. The most important factor in the spontaneous development of immunity is crowding which favors the transfer of contagion and immunization through infection. Figures showing incidence of susceptibility to scarlet fever in one group do not give an idea of what the incidence of susceptibility in another group might be unless the living conditions are practically the same. In an overcrowded institution the incidence of susceptibility may be as low as 10% and in rural or suburban groups it may be as high as 85%.

In a series of skin tests it will be found that the positive reactions show all gradations, from small areas of faint color to intensely red reactions three to five centimeters in diameter. These differences in the intensity and size of the skin reactions correspond to differences in degree of susceptibility and partly explain the great variation in severity of scarlet fever. The intermediate stages of the reaction also indicate that, in many persons, immunity to scarlet fever is acquired gradually through repeated infections with scarlet fever streptococci without the development of a typical attack of the disease. It has been learned that one attack of scarlet fever sore throat does not necessarily confer complete immunity; while typical attacks of scarlet fever usually result in complete immunity as indicated by negative skin reactions in convalescent scarlet fever patients and the comparative infrequency of second attacks of the disease.

Active immunization with graduated doses of sterile scarlet fever toxin in 12,775 susceptible

persons caused no injury in any instance. In three institutions, urine analyses were made before, during and after immunization. There was no evidence of nephritis caused by the immunization. Some persons who had nephritis were immunized without causing an exacerbation of the condition.

In a large series, including highly susceptible individuals, general reactions may be expected in about 10% after each dose. But this 10% is not composed of the same individuals after the different doses. The most highly susceptible persons usually react more strongly on the first doses; others may not have any reactions until the fourth or fifth dose is given. As a rule reactions after the last and largest dose are fewer and milder than after the smaller first doses. The immunizing doses should be accurately graduated and it is important to give them in the proper sequence in order to avoid unnecessarily severe reactions. But mistakes have been made in which the last dose has been injected as a first dose and no fatalities have occurred. Experimentally, we have injected as much as twenty cubic centimeters of undiluted toxin, containing nearly one million skin test doses, without causing injury and without producing nephritis in human beings.

The larger immunizing doses of toxin give a higher degree of immunity in a higher percentage of susceptible persons. In much of the work reported, small doses have been employed. We have not been able to verify the results of those who claimed negative skin tests in 85% after a maximum dose of three thousand skin test doses of preserved toxin. Neither have we been able to verify the claims as to the protective value of ricinoleated toxin described by Larson. We used Larson's material in three one cubic centimeter doses and found that it caused more severe reactions than followed the graduated doses of toxin. The skin test did not become negative in any of the susceptible persons who received the Larson preparation and, on subsequent exposure to scarlet fever, a number of them developed the disease. The wide use of a commercial preparation of the ricinoleated toxin and the unfounded claims made for it by the manufacturer have done much to discredit the new methods for the control of scarlet fever and tend to discredit preventive immunization in general. In spite of our repeated warnings against this preparation, it has been widely distributed and employed by physicians in unsuccessful attempts to control epidemics of scarlet fever.

The doses of sterile toxin for active immunization should be graduated, beginning with five hundred skin test doses in the first injection and increasing to eighty or one hundred thousand skin test doses in the last injection. The injections are made subcutaneously at intervals of one week. If the full amount is given in each dose, the five doses may be counted on to immunize completely 95% of susceptible persons and to considerably modify the susceptibility of the remainder. Two weeks after the last dose is given, another skin test is made, using one-tenth cubic centimeter of the skin test solution, or one skin test dose, on the right arm and two-tenths cubic centimeter, or two skin test doses, on the left arm. If the reaction on either arm is positive, the fifth dose is repeated.

Unless the immunization is carried to the point of a negative skin test, complete protection against scarlet fever cannot be expected; though the severity of a subsequent attack of scarlet fever would be modified by the partial immunization.

The duration of active immunity as well as the degree of immunity depends on the amount of toxin injected. Retests made at intervals of one, two and three years indicate that more than 90% of those immunized to the point of an entirely negative skin test retain their immunity. Between 5 and 9% slip back and require a second immunization.

Under ordinary conditions, not more than 10% of contacts become infected with scarlet fever streptococci, but in institutions where the inmates are in contact with one another during most of the twenty-four hours, more than 50% may become infected during a prolonged epidemic of scarlet fever and it may be expected that eventually most of the susceptibles will develop scarlet fever in some form. Conditions in institutions where the disease is epidemic are favorable for determining the efficacy of active immunization in controlling scarlet fever. A number of such institutions have been under observation during the past six years. Skin tests were made on every one and the susceptibles were immunized with graduated doses of toxin. No case of scarlet fever has occurred among 11,584

susceptible persons immunized in institutions where scarlet fever was epidemic. Controls were furnished by typical cases of scarlet fever developing in newly admitted persons who had not been tested and immunized before they were introduced into the infected community, and by cases of scarlet fever in teachers and attendants who refused immunization.

An opportunity to study results of active immunization is also found in 1,191 susceptible nurses and internes immunized before they began work in contagious disease hospitals. These artificially immunized persons have had the same prolonged and intimate exposure to scarlet fever as the naturally immune nurses and internes. None have contracted the disease. Controls in this group are furnished by thirty-seven cases of scarlet fever in nurses and internes who entered before they had been tested for susceptibility or who were known to have positive skin reactions and had not been immunized.

Since persons who are immune to scarlet fever do not require protection, the indiscriminate administration of prophylactic doses of scarlet fever antitoxin to contacts is not justified. If it is not possible to make skin tests and nose and throat cultures on blood agar plates to determine which contacts need antitoxin, it is better to watch all of them closely and give a therapeutic dose of antitoxin on the development of any symptoms suggestive of scarlet fever.

Where it is possible to make skin tests and cultures and establish quarantine separating the infected from the non-infected persons, active immunization with the toxin of the non-infected susceptibles may be begun at once and prophylactic doses of scarlet fever antitoxin may be given to persons who are both susceptible and infected.

By the use of nose and throat cultures on blood agar plates, skin tests for susceptibility, active immunization with the toxin, and use of antitoxin prophylactically in infected susceptibles, it is possible in a group, small enough to test and culture in one day, to bring an epidemic of scarlet fever under control in 48 hours.

The passive protection conferred by a prophylactic dose of any antitoxin is transient, lasting at the most two to three weeks. Active immunization with the toxin should be begun in the infected susceptibles one week after the prophylactic dose of antitoxin is given.

Scarlet fever antitoxin may be employed therapeutically with advantage in all cases of scarlet fever as soon as the appearance of the rash suggests the diagnosis. Given early in adequate dosage, scarlet fever antitoxin gives brilliant results. The patient sometimes recovers so promptly that the attending physician wonders if he could have been mistaken in the diagnosis of scarlet fever.

The longer the patient goes without antitoxin, the less he benefits from the antitoxin when it is given. It should not be withheld until it becomes apparent that the attack is a severe one but given in time to prevent the development of a severe attack.

Reports as to the effect of scarlet fever antitoxin in reducing complications are sometimes conflicting due to delay in administering the serum and to the use of poor preparations of antitoxin. Most scarlet fever antitoxin of European manufacture is considerably weaker than the best American serum. Samples purchased in Europe have been found to contain from a trace to five thousand neutralizing units per cubic centimeter, while the best American serum contains thirty thousand units.

Scarlet fever patients in hospitals do not furnish the most favorable material for determining the therapeutic value of the antitoxin because administration of the serum is delayed until the diagnosis of scarlet fever has been confirmed, the health department notified, and arrangements made for transferring the patient to a hospital. But, even with the delay involved in such cases, it has been shown that scarlet fever antitoxin reduces the incidence and severity of complications. Results in the antitoxin series, which included the more severe cases, compared with results in the control series, comprised of the cases which, on admission to the hospitals, appeared to be less severe, show that mastoiditis occurred three times as frequently in the control series as in the antitoxin series; the incidence of post scarlatinal nephritis in the control series was four times that in the antitoxin series; and in spite of the milder appearance at the onset, the death rate in the control series was twice that in the antitoxin series.

637 South Wood Street.

SMALL AND LARGE QUANTITIES OF RADIUM IN THE TREATMENT OF MALIGNANCY OF THE MUCOUS MEMBRANES*

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ROY EMMERT FLESHER, M. D.,
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The other day a famous surgeon said: "One can do a million dollars worth of harm with a nickel's worth of radium." We have often contended that one thousand or more milligrams of radium is of most value in cancer, when it is used at *one time on one patient*—not when it is distributed to 20 or more patients at various points of the compass.

Radium treatments for cancer, at least in cases of serious cancer, should be carried out as an institutional problem.

When cases cease to be ambulatory, i. e., are confined to the house or bed, they are usually in such an advanced stage of the disease that all treatment is useless, except from the standpoint of relieving pain, using antiseptic dressings, etc.

Large quantities of radium, such as one or more grams, cannot easily be transported and the apparatus for protecting patients and nurses is not easily handled.

The technic of radium treatment is very complex. It cannot be taught in a day or year. Only long and varied experience in applying the right kind of treatment to different cases can result in the greatest good.

Radium treatment may actually and easily do harm, either from improper doses or by depriving patients of other kinds of treatment which might be more helpful than radium.

In the application of radium or radon to malignant lesions of the mucous membranes, one of the problems is—how can we get a more parallel ray?

Obviously, by increasing the distance of the radium from the lesion. When one does this, however, one must evidently increase the quantity of radium.

Only in this way can homogeneous irradiation of a lesion of much size or depth be accomplished.

Prolonging the time of application does not compensate for the lack of a sufficient quantity of radium except within rather narrow limits.

A second principle of the irradiation of a lesion of the mucous membranes is that it should not be irritated or traumatized.

The advantages of applying radium for minutes instead of hours would appear to be self-evident.

One should not forget that every cancer of the mucous membranes is potentially fatal.

In trying to estimate the relative value of small or large quantities of radium, one should remember that the method of practice of a certain group of radiologists does not alter the fundamental principles of radium treatment.

1605 Mallers Bldg.

*Read before the Section on Radiology, Illinois State Medical Society, Peoria, May 22, 1929.

THE PRE-RADIUM TREATMENT OF UTERINE CERVICAL MALIGNANCY*

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Most surgeons and gynecologists are now agreed that once a definite diagnosis of uterine cervical cancer has been made, the case is one for radiation treatment, with the possible exception of the infrequent Stage I growths (small growths clearly localized within the cervix), in which surgery or radium may be used with equal success.

Since the use of radium in uterine cancer is a hospital procedure and the patient is not acutely ill, this frequently incurs some delay until consent has been secured to proceed with the treatment. Many woman will delay some weeks "getting ready" to go to the hospital. What treatment should the patient receive in the interval? Should the physician administer no treatment in uterine cervical malignancy until radium is actually applied?

It is a fact that the majority of patients suffering from cervical cancer when first seen by the physician, already present an advanced stage of the disease. Schmitz, in his analysis of 332 cases, found that 49 per cent. had Stage III growths when treatment was first begun and 30

*Read before the Section of Radiology, Illinois State Medical Society, Peoria, May 22, 1929.

per cent. had Stage IV growths—a total of 79 per cent. advanced lesions. Other writers report statistics in about the same proportion, many stating that the Stage III growth is the most frequently encountered at the time radium is applied. (Stage III growths comprise those where there is in addition to involvement of the cervix, an induration of the contiguous tissues. The growth has left the cervix and either one or both parametria or regional lymph nodes have been invaded, a fact which can be elicited by rectal examination. The tumor mass is movable, though elasticity of the tissues is lost.)

External Radiation. When radium is applied in the uterus or vagina, its ability to successfully destroy cancer cells probably does not reach beyond 2 or 3 cm., from the source of the radium. It is apparent, therefore, in Stage III or IV cervical growths, that radium alone can not be expected to control the condition and that additional radiation from without is also necessary. This can be applied in the form of high voltage (200,000 volts) x-ray treatment, or by means of the so-called "radium pack" by which the entire pelvis is cross fired through a number of different portals. In such advanced cases, the question is, should this external radiation precede the internal radium treatment or not? There appears no question that the parametrial involvement is the greatest source of danger to the patient and may result in perforation into the rectum or bladder, or permit the growth to spread beyond the pelvis. It is also true that the outer limits of a tumor are usually the most active in growth. In view of the above, would it not appear more logical to administer the external radiation first?

The views of Prof. Claude Regaud (Associate of Mme. Curie), of the University of Paris, who has had perhaps as wide an experience as anyone with radiation treatment of cancer, are interesting in this connection.

Regaud believes that any attempt to reach the parametrial involvement in cervical cancer by radium needles, implants, seeds, etc., is not good practice. He contends that the interstitial use of radium in this region is dangerous. The simultaneous employment of radium puncture and intra-utero-vaginal irradiation may cause secondary rays excited by the impingement of gamma rays on the platinum needles or seeds. Such beta therapy increases the danger of radium necrosis. Regaud states that the association of x-rays or radium at a distance, with radium applied utero-vaginally, is the correct method when the parametrium is invaded. He contends that if x-rays are used to give the external treatment, they should always precede the radium treatment, while if external radium therapy at a distance is used (radium pack) it should follow the internal radium therapy.

Pack, in describing Regaud's method, states:

> The association of radium therapy with roentgen therapy is for the purpose of securing the combined action of the x-rays (in the peripheral part of the neoplastic territory) and of radium in the uterus and vagina. When the neoplasm has extended beyond the uterus (parametrium, vagina, pelvic adenopathies) this combination is the method of choice and is the rule in the majority of instances. Regaud believes that the order of succession of these two agents is not an indifferent matter. The inefficiency of the x-rays in the treatment of recurrences following previous radium therapy has been shown by Regaud (1923) *apropos* of epitheliomas of the skin and mucous membranes in general. X-rays are especially inefficient after radium therapy has been given by the utero-vaginal method. To use these agents in the correct combination roentgen therapy should be administered first, followed immediately, or after a very short period of rest, by radium therapy.

Cervical Infection. A factor that many American radiologists in treating malignancy have not given proper consideration, is the local infection that accompanies so many of these growths. The role of infections in the dangers and complications of radium is particularly *apropos* in cancer of the uterine cervix. Local infection invariably accompanies cervical cancer at the moment it opens into the vagina. The infection usually progresses with the progress of the cancer and probably does as much, if not more, to break down the resistance of the patient than does the growth itself. The infection is at first superficial, but later extends deeply and the infiltrations that one palpates may be due to infection, new growth, or both. If an attempt is not made to first control this, radium may transform the local infection into an acute pelvic cellulitis, a suppurative salpingitis, a circumscribed phlegmon of the pelvic tissue, a generalized peritonitis, or a septicemia.

The rapidity with which some physicians apply radium, immediately upon diagnosis of a cervical cancer and without any preliminary

treatment, is to be condemned. A better procedure is to give antiseptic vaginal douches several times each day until the local infection is controlled. Pack, in describing Regaud's preliminary radium treatment states:

The putrefactive microbes disappear readily under this local treatment, but the pyogens, namely, the staphylococcus and streptococcus, are more difficult to destroy. Autogenous vaccines are responded to by the staphylococci, but the streptococci, particularly those of the dangerous hemolytic type, are very resistant. In every instance where internal radium therapy has been followed by severe pelvic infection, the preceding bacteriologic analysis has demonstrated the presence of hemolytic streptococci: on the contrary, not every patient harboring these streptococci within her vagina will suffer this complication.

The ablation or curettage of cancerous vegetations of the uterine cervix has certain advantages; it facilitates treatment; it may suppress the suppuration from the infected cervix; it frees the implantation of the cervical tumor from the orifice of the uterine canal; it permits closer approximation of the radium foci to outlying cancer tissue; it favors cicatrization and lessens the danger of toxemia from absorption. A bleeding, infected, sphacelus, "cauliflower" cervical tumor should be amputated, preferably by diathermocoagulation, previous to the introduction of the radium into the vagina and uterine canal.

Kaplan, in describing the method used at Bellevue Hospital for these patients, states:

Treatments are planned according to the extent of the lesion present. If marked ulceration and infection are present in the vagina, a course of disinfection with douches initiates the treatment. The patient is shaved and cleansed externally; the bowels are cleansed with enemas. Douching with boric acid solution or with 2% glucose solution twice daily is carried out until the vagina has been thoroughly cleansed and much of the induration about the cervix reduced. Following this, the vagina is irrigated with 2% methylene blue solution, a mild antiseptic which seems to clear up the infection more rapidly. Radiation is not begun until the disinfection or cleansing is completed, so little infection is present in the vagina when the treatment is applied. Meanwhile the general condition of the patient is improved by dietetic and hygienic methods. Constipation, which is present in nearly all cases, is treated by mineral oil and magnesia and enemas if necessary.

Pinch, in describing the technic used at the internationally known Radium Institute of London states:

Patients suffering from carcinoma of the uterus often present themselves in a condition which negatives any attempt at immediate treatment. The cervix, fornices and vaginal walls are extremely ulcerated, covered with washleather sloughs, and exude a constant copious purulent offensive discharge. It is of the utmost importance to render the diseased surfaces as clean as possible before using radium. Douches of Tr. Iodi. drams 1 to 1 pint of warm water, should be used two or three times a day, a Ferguson speculum should be passed, and any loosely adherent sloughs detached with forceps or a probe covered with cotton wool. This treatment should be persisted with until all detritus and sloughs have been removed and the discharge is no longer offensive. If the iodine douche proves unduly irritating, glyco-thymoline (1-20) may be substituted for it in the later stages. A douche of Flavine, 1 in 2,500, should be given on the day before, and early in the morning of the day on which the radium is inserted.

During this preliminary treatment the patient, if able, may be up and around. She should be thoroughly examined to determine the extent of the lesion and to ascertain if any distant metastasis is present. X-rays of the chest, spine and pelvis are valuable in ruling out metastasis in these parts which are favorable areas for the growths to appear.

After a week or 10 days of preliminary treatment the cervical canal should be gently dilated by the use of graduated uterine sounds, and the length of the uterine canal obtained. The patient is then returned to bed and her temperature taken at frequent intervals for 24 hours. If there is no increase in temperature the patient is ready for the internal radium treatment.

Preliminary Radium or Electro-Thermic Amputation. When the cervical canal is filled with a cauliflower growth or an ulcerating growth at the external os, and localization of the cervical canal is impossible, the patient should not be given the principal internal radium treatment. Such cases should receive preliminary radium therapy usually by the imbedment of radium needles or implants, or the cervix should be removed by electro-thermic measures.

Kaplan, Pfahler and others advocate the amputation of the cervix or the removal of malignant masses by electro-thermic means immediately preceding the insertion of radium in certain cases (small per cent) of cervical cancer—as when the cervical canal is obstructed by a large cauliflower growth blocking the vagina or there is much hypertrophy of the cervix associated with a large amount of fibrous tissue which may help to shield carcinoma cells. When such treatment is given preliminary radium therapy is not necessary, as the uterine canal is

rendered patent and the principal radium treatment can be readily carried out. Sometimes complete removal is not possible. In such instances, as much growth as feasible is removed and then radium needles are inserted in the remaining mass. When the mass has receded the uterine canal may be located and the principal radium treatment carried out. It is well to remember, in constructing radium applicators for such cases, that the uterine canal will be shortened because of the amputation.

If preliminary radium is used the uterine canal will usually become sufficiently patent in 10 to 20 days to permit the introduction of an intra-uterine radium applicator. In fact, these cases usually respond remarkably to such preliminary radium treatment. There is a danger that the patient or physician may think that further radium is not necessary because the excrescences are cleared up so readily.

Preliminary radium treatment or electrothermic amputation is absolutely necessary in all cases where the growth has proliferated to such an extent as to occlude the cervical canal, if the maximum results are to be secured. The principal radium treatment should not be given until the uterine canal is rendered patent. Many radiologists are now of the opinion that the best results from radium in cervical cancer can only be secured by treating the entire uterus with heavily filtered radium. This necessitates the predetermining of the length of the uterine canal, in order that the proper type of applicator may be provided.

CONCLUSION

In conclusion the following in regard to preradium treatment of cervical cancer should be emphasized:

1. Every case of advanced cervical cancer should receive external radiation and if this is given by high voltage x-rays, it should preferably precede the internal radium treatment.

2. Local infection constantly accompanies cervical cancer and no case should receive internal radium treatment until the infection has been controlled by suitable douches, etc.

3. The principal internal radium treatment should not be given until the uterine canal is patent. If the canal is occluded it should be treated by preliminary radium until rendered patent, or the cervix should be amputated by electro-thermic measures preceding the principal internal radium therapy.

211-224 W. C. U. Bldg.

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DISCUSSION ON PAPERS OF DRS. FLESHER AND SIMPSON AND DR. HAROLD SWANBERG

Dr. Thomas D. Cantrell, Bloomington: In connection with the paper on "Pre-Radium Treatment of Cervical Cancer," as an exclusive treatment, the whole thing seems to me in radium to be the question of filtration, just what ray we want to utilize under certain conditions. In my estimation, we will never be able to find a certain ray that might be utilized for the treatment of all conditions, but we have to develop that within us so that when we examine a patient, using all the means to ascertain the real malignancy and so forth, eventually we will be able to determine the amount of filtration we want to use, whether we want to use less filtration for the destruction of tissue or whether we want to use the gold filter for a longer length of time.

It is going to depend upon the time and energy, with us, to ascertain what treatments we are going to use.

My work has been limited largely to the use of the element. I have had little experience in emanation. We have had a beautiful result recently from a cancer of the mouth, the hard palate, with the glass emanation. We are also using the starvation method by ligating the arteries that supply the part, depending upon the collateral circulation. In this we seem to be getting fine results.

It is a study, and a problem not solved yet, as to what ray we want to use. That is an open question and we must spend a great deal of time upon it; it will take perhaps several years to work it out in the most efficient manner.

The newest thing, and the best thing, I think, of all in making the application of radium, is preparing the field carefully before we make the application. We thought radium or x-ray was a thorough antiseptic and would cleanse its own field. We have found that is a misnomer, and we must prepare the field before we apply the radium or x-ray.

I feel the radium has its field, the emanation has its field, but not to the exclusion of the x-ray. If

you had two or three million dollars worth of radium, you might put it off fifty centimeters distance and get the same results as with high voltage x-ray, but that is impracticable.

I believe the work is only half done, when it is done by the man who uses the radium alone; that he must use both in these cases, and they must work together.

Dr. Henry Schmitz, Chicago: The statement made by Dr. Swanberg regarding the treatment of the periphery of the bony pelvis in primary pelvic cancers is a timely one. Those who see a great number of pelvic carcinomas that have been treated only with radium and that develop pain after a local healing due to peripheral extension and growth must conclude that radiation of the parametria might have prevented such a complication. This is the reason why we use a combination of deep roentgen and radium treatment. It is evident that the action of radium is local and the action of roentgen rays is diffuse.

In Chicago, for the last year and one-half, we have been using a radium pack built on the same idea as an x-ray tube. The radium is contained within an area of three centimeters diameter. The pack is placed at a distance of ten centimeters from the patient. It has a heavy outer lead tube, 2½ cm. thick, surrounded by aluminum, so there is no possibility of any secondary radiation striking the patient. The filter thickness is 5 mm. of brass. We have used it not only in cervical carcinoma but also in the neck and outer regions. The results come nearer to homogeneous radiation than anything else of which I know. We have not seen any better effect than we would have obtained with a similar dose of x-rays. The output of the radium pack has been determined with the same dosemeter as used for the x-rays. Under these conditions we give 25,000 milligram hours of radium to obtain the same result as with the x-rays.

It has been my experience that if one uses any kind of a metallic substance in a radiation field the secondary radiations are quite heavy and rather destructive.

Dr. C. W. Hanford, Chicago: I think we can all see that radon has met a long felt want, especially where the size of the applicator is the thing to be considered. There is, of course, the possibility of not being able to use a tube or radium needle where the small gold implant would be of advantage. Further, I do not think radon has done anything in particular over the radium element. In fact, I know it has not. I commend Dr. Schmitz for stating the point regarding the use of these applications.

In regard to the treatment of carcinoma of the inside of the cheek, instead of using radon, I have been extremely successful in using radium. In the concave surface I use the dose of radium I desire, I employ a teaspoon, screening as indicated, and using a rubber cover and strapping it in with adhesive. On the convex portion I place about five millimeters of lead, covered with a layer of aluminum and strap that on, covering the whole with rubber tissue. I introduce this spoon into the mouth with the concave portion toward the lesion, and then bend the handle around to the cheek and strap it on.

I am a great believer in the direct application of radium to eliminate as much of the trauma as we possibly can, which trauma results from needle insertion.

Dr. Rollin H. Stevens, Detroit, Michigan: I have been very much interested in the papers presented this morning.

In regard to Dr. Swanberg's paper on the treatment of the uterus, I agree with a good deal of what he has said. Yet I am impressed with some things which I think are not quite as important as they are made to appear. In regard to the disinfection of the vaginal canal and the uterus, I don't believe it is possible to disinfect that canal by local applications. Possibly some of it can be accomplished by vaccines, as he says.

I believe in cleanliness, but I think the attempts to completely sterilize the vaginal canal by toxical disinfectants have perhaps been stressed a little bit too much, especially when treatment is begun with the x-ray and followed by radium.

As Dr. Schmitz said, it does not make any difference what ray we use so long as we get the proper amount of energy into the tissues we wish to treat, and if we can accomplish that with the deep x-ray, we are going to succeed. One reason for using the x-ray before radium in cancer of the cervix is because there is great danger of expressing cancer cells into lymphatics by the trauma caused by the dilatation and introduction of the radium tube.

I wish to ask a question about radon therapy. Dr. Schmitz stated it made no difference whether you used radon, radium element, or x-ray. In the use of radon are we not dealing with a constantly decreasing amount of energy during treatment? And from what we know about the biological effect of radiation upon disease cells, would it not seem that the quantum of radiation should be kept constant or really increase? That we ought to keep up a saturation? With the radon we are getting constantly decreasing intensity of radiation, whereas, with the element we are keeping up a constant saturation with the energy we are using. Therefore, it would seem that radium element serves the purpose better than radon.

I don't want to be misunderstood in saying I don't believe in any of the cleansing methods or douching. I certainly do, but I thought perhaps we were trying to do too much of it.

I want to say I have been using for the last year or two gauze packing with my radium and I found that I can leave that in the vagina for four or five or six days with radium in the uterus and vagina, without

having offensive discharges from the vagina. It comes out sweet and clean. You might think you would get characteristic radiation from the iodoform that might do harm, but I have not seen any bad results.

Dr. W. Walter Wasson, Denver, Colorado: A few years ago I saw a woman, in her late thirties, with cervical cancer. She received the usual deep therapy and the cervical application of radium. After her treatment she developed an induration of the vagina with an encroachment upon the canal, which was very puzzling to me. It was impossible for me to distinguish this condition from definite malignant involvement.

I felt very much discouraged with my treatment. I felt that I had either overtreated this patient, causing a cicatricial contraction that was harmful, or else that I had not overcome the malignant involvement. I put that patient upon a vaginal douche treatment and very much to my surprise her condition cleared. She improved slowly, and she is entirely well today after four or five years. I think that experience may help others. It has helped me a great many times since when I was in doubt as to whether I had a malignant induration following treatment or duration and proliferation of tissue from infection.

I do not know that we can completely sterilize the vaginal canal by douches, but I do believe we can do a great deal towards removal of proliferation of tissue as a result of infection.

Dr. Swanberg (closing): Dr. Magee showed the arrangement of applying radium in the vagina in cervical malignancy. I believe the use of a colpostat is much more effective than that which was presented. The colpostat consists of two barrels containing radium, which are held together with a spring, the radium being held in position in the lateral vaginal fornices. The advantage of the spring is that it holds the applicator in position and nearer to the parametria than by any other method.

In regard to Dr. Stevens' remarks about preliminary douching, I think the preliminary douche is important, especially if marked infection is present. I appreciate it is impossible to render the vaginal tract sterile by douches, but we are less likely to have a temperature reaction when the radium is in position if the patient has been prepared by preliminary douching. If we introduce radium and keep it in position for a number of days without preliminary douching, we are almost sure to have a temperature rise.

Dr. Schmitz has given a very sympathetic plea for the use of all radiation methods in the war on malignancy. Both radium element and emanation have their fields. It is interesting to note, however, that Regaud, who has at his command one of the largest amounts of radium in the world (9½ grams), gives his preference to radium in element form.

THE MASKED TUBERCLE*

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"Three-fourths of the instances of acute tuberculosis are from an unhealed [active] focus of tuberculous adenitis."—Sir William Osler.

Perhaps it would be well to state at the outset that much of what is to follow is based on the belief that pulmonary tuberculosis—paradoxical though it may seem—is not primarily a disease of the lungs, but is in its earliest manifestations a biochemical complex manifested by dysfunction and recognized clinically, first by symptoms and later by physical signs. If this be true, the following deduction seems logical: one may not find significant manifestations of structural changes in the lungs at the time the patient seeks advice, even though the *symptoms* from which relief is sought are due to an active tuberculous process therein. This is supported by experience. It has been stated that 60 per cent. of the cases of pulmonary tuberculosis are correctly diagnosed for the first time approximately one year before death. Certainly it is true that an astonishingly large number are not diagnosed before they are moderately advanced, and the percentage, as stated, is, I believe, not far from the truth.

No one acquainted with the facts will contend that the fault lies entirely with the patient through his failure to seek timely medical advice. Let us, then, scrutinize our profession and see if we may not find therein some plausible explanation for the conditions just mentioned. For instance, it has seemed to me that one of the regrettable reactions following upon the general acceptance of the classification of pulmonary tuberculosis as formulated by the National Tuberculosis Association, and one not foreseen by its sponsors at the time of its adoption, is that many physicians do not realize that the schema does not include all the forms of intrathoracic tuberculosis—forms closely related to the pulmonary type and having a symptomatology closely simulating it, if, indeed, not identical with it, but in which the physical examination does not reveal the unquestionable involvement of lung parenchyma. The ill-informed may reason somewhat after this fashion:

*Read before the Illinois Tuberculosis Society, Centralia, October 29, 1928.

If the symptoms are due to tuberculosis, the condition must conform to the specifications of one of the divisions of the classification—otherwise tuberculosis is *a priori* eliminated. Of course, the Association has stated that the classification applies only to pulmonary tuberculosis, *i. e.,* to a tuberculosis that gives physical evidence of involvement of pulmonary structures. We err in reading into it something that its sponsors never intended it should include. They, I take it, realize its limitations fully. Moreover, I believe most clinicians will agree that it is as satisfactory as any so far suggested, even though they may not unanimously concede it a full measure of approval. In other words, because of our failure to realize that the classification includes only those tuberculous processes which have produced structural changes in lung tissues, we may not remember that there may be a tuberculous process on the borderline which as yet has not advanced sufficiently to be classified as *Minimal,* and, therefore, not demonstrable by the usual methods of physical examination. In my teaching I have chosen to style this *Preminimal Tuberculosis.* This preminimal state is most worthy your intensive, conscientious study, for by its early recognition appropriate treatment may be instituted, the disease arrested, and lesions of the pulmonary parenchyma thereby prevented. That a preminimal condition is clearly recognized by some clinicians is indicated by the introduction of such descriptive terms as "tubercle," "pretuberculous," "latent," "premanifest tuberculosis," "epituberculous," or, if you care to, "preminimal tuberculosis." Whatever the name, the cause is an active tubercle because that symptom-complex is really due to tubercle though its identification is obscure, and its symptoms are not pathognomonic. The disease at this stage is only on the theshold of minimal pulmonary tuberculosis and can not rightly be classified as pulmonary tuberculosis. It is equally erroneous to say it is non-tuberculous.

It will help our understanding of these obscure tuberculous conditions if we look upon tuberculosis in its earliest stages as a systemic, toxic disease in which the foci of activity are by no means always clearly defined or demonstrable.

That the profession is not doing its full duty in recognizing this pre-pulmonary state would seem to be sustained by the observations of Levinson,[1] who states that 7.6 per cent. of the children under twelve years of age in the wards of Cook County Hospital were found to be tuberculous. The actual figures covering the years 1926 and 1927 were: Total number of cases, 1,562, of which 119 were tuberculous. None of these children was hospitalized because of tuberculosis; none was known to be tuberculous at the time of his hospitalization.

It is here relevant to mention that, with rare exceptions, tuberculous infection begins in childhood; that by the eighteenth year about 80 per cent. of those who have lived in intimate contact with open cases of tuberculosis, especially on the maternal side, are tuberculous; that the presence of the tubercle bacillus within the host engenders a resistance sufficient to have a marked inhibitory influence—often sufficient to protect the individual against tuberculous disease. In individuals in whom primary infection is delayed until adult life, the disease is rapidly fatal.

It would seem, therefore, that if we are to have a correct conception of the clinical course of tuberculosis, we must first examine into the phenomena attendant upon the invading tubercle bacillus, and from here follow through until it becomes clearly manifested as tuberculous disease.

Finally, I will repeat what has often been said but is worthy of many repetitions—tuberculosis is usually chronic, is continuous over many years, often punctuated by symptom-free periods, and one may be afflicted with many different intercurrent diseases during its protracted course. Nor is the physician always indifferent to the resentment of his patient against being diagnosed tuberculous, a factor that may have considerable influence in repressing a candid expression of belief. But of this you may be sure—once the lungs are involved, you have entered upon the last chapter of what has been a long story, the only exception, possibly, being the *primary* infection of adult life.

It is convenient to consider the masked tubercle under three heads. Let us call them Types I, II and III.

TYPE I. LATENT GLANDULAR TUBERCULOSIS COMMON IN CHILDHOOD

Although the pathogenesis of tuberculosis cannot be considered as conclusively proven, I be-

1. Archives of Pediatrics, July, 1928.

lieve most of us are inclined to accept Gohn's assertion that the tubercle bacillus invades the lung through the respiratory tract, forms its primary lesion in the parenchyma, and heals. The drainage is through the hilum and to the lymphatic glands adjacent thereto. If the invasion occurs during the first year of life, the infant dies, usually of tuberculous meningitis. If the invasion occurs later, and the bacilli are not too virulent, the dose massive nor too oft repeated, the lesion will be arrested, and the story ended. It would seem, then, that, following this early tragic period, this first year, some change has occurred within the infant's organism which has enabled it to neutralize the virulency of the tuberculous infection, and each succeeding year—or shall we say invasion—carries with it some additional degree of immunization. But if repeated in too rapid succession, or if the bacilli are of too virulent strain, or the dose massive, the individual will not be so fortunate as to completely overcome the destructive influence of the bacilli, and the disease will progress. Its course, it is true, may at times be punctuated with periods of arrest—an arrest which may become permanent, but the observation that less than one in ten of all deaths is caused by tuberculosis, whereas autopsies have revealed that one in five of persons dying from all causes are found to have tuberculous lesions, healed or caseous, calls for more than passing thought. Let us, then, follow these invading parasites to see if we may not find some evidence by which their presence may be suspected with reasonable certainty.

The progressive course of these organisms, pathologists teach us, is *via* the afferent lymph stream, progressing from gland to gland, in which they meet arrest—temporary or complete. The symptoms may be negligible, and there are, of course, no physical signs in the lungs. Potential activity is always present, and the existence of the tubercle can only be surmised. This surmise will justify an affirmation if one can obtain a clear history of contact infection, especially on the maternal side, and if, in addition thereto, tactile examination reveals palpable glands in the axillæ and percussion dullness at the angle of Louis and the area contiguous thereto.

TYPE II. ACTIVE GLANDULAR TUBERCULOSIS

This disease is sequela to the latent form just mentioned and marks the progress of the invasion by a somewhat more definite symptomatology. Tubercles are not manifested by physical signs because the lungs as yet have not become involved. The disease is to be suspected in the presence of contact infection and a symptom-complex of low fatigability. It differs from the preceding form, Type I, in that malnutrition and cough, temperature, malaise, nervous irritability, rise in pulse rate, etc., are present. I would here again emphasize that although it is true that usually a tuberculous child fails to gain in weight, there are, nevertheless, many exceptions in which the disease is quite active and yet the child may be above normal average in weight. Nor should one limit his inquiries concerning contact infection to the immediate members of the family. Extra-familial contacts may reveal the secret—nurses, servants, sweethearts, school associates, visitors playmates, etc. Contact exposure having been established, the diagnosis will be clinched beyond reasonable doubt if a positive Montoux or von Pirquet reaction is obtained. We do know beyond question that tuberculin excites activity in tuberculous glands, causing a localized inflammation, which is often followed by fibrosis. Indeed, this is the basis of tuberculin therapy, and, furthermore, it is believed that this local inflammation increases the immunizing bodies.

Opie[2] recently stated that activated glands may be identified on the x-ray plate by the fact of their having lost their clear-cut outline and become granular in appearance at the margins. I understand that the x-ray will not reveal hyperplastic glands unless they have undergone some degree of calcification. This brings us, then, to the consideration that in very early processes in which the glands have not calcified it may not be possible to demonstrate them by roentgenologic methods although, of course, this will not necessarily negate the presence of tuberculous glands as the cause of the symptoms. I believe I am right in asserting that the interpretation of x-ray plates has not been standardized, and I would warn clinicians to accept negative statements with reservations. Before leaving the sub-

2. British Medical Journal, December, 1927, p. 1130.

ject of x-ray diagnosis it is pertinent to remark that I gather from the European literature that physicians there place more reliance on the x-ray findings than our experience in this country seems to justify. Whether this is due to different technic, superiority of apparatus, or to other causes, I do not venture to express an opinion—I leave it as an open question.

TYPE III. THE MASKED TUBERCLE, WITH TRANSIENT DEMONSTRABLE PULMONARY LESION

This is rather an uncommon form but almost every physician working in chest diseases has made record of cases. It usually appears in adolescents. A conclusive family contact history is often hard to obtain. The patient has been in active, vigorous health and good flesh. He gives a history of a cold—not necessarily severe or of long duration. Possibly for a few days he has realized that he has a temperature, and is feeling generally out of sorts. He recovers, but coughs slightly though persistently. In the course of a month or six weeks he notices that, whereas his muscular strength is seemingly undiminished, his endurance is lessened, and his cheeks flush during the mid-afternoon. Physical examination reveals a little moisture in an apex. There is often no temperature at the time of examination, but if taken according to the directions which I shall outline later, under tuberculin diagnostic tests, there will usually be revealed from 0.5 to 1 degree of elevation. The pulse rate holds around 90, even without exertion, and the pulse is usually soft. Inspiratory sounds at the apex are of a moist, bronchovesicular type, often interrupted, and the percussion note over the area involved is low tympanic. True râles may not be demonstrable at this stage. If the patient is given appropriate treatment, his activities curtailed, he will recover in all probability and the underlying cause—tuberculosis—remain unsuspected. This is a truly abortive type of pulmonary tuberculosis which I believe we are justified in classifying as a form of the masked tubercle because of its lack of frank tuberculous demonstration and because it does not come clearly within the classification of *Minimal,* although the lung structure is involved.

Chronologically, then, we recognize the masked tubercle in the following progressive stages:

Type I, Latent Glandular Tuberculosis.—No symptoms; no physical signs. This condition may be surmised but cannot be proven at this stage; it should be assumed when contact with an open case is known and the tuberculin test is positive. It is the precursor of active tuberculosis, *i. e.,* of active glandular tuberculosis.

Type II, Second Stage of the Masked Tubercle.—Symptoms of glandular activity not pathognomonic; manifested as a systemic dysfunction. The presence of the tubercle may be proven by the tuberculin reaction and if supported by a confirmatory history of exposure to infection, a diagnosis of active masked tubercle is justified. There are no physical signs indicating involvement of pulmonary parenchyma. Symptoms conform to those of tuberculous toxicity.

Type III, Third Stage of the Masked Tubercle, with Transient Demonstrable Pulmonary Lesion.—Here the process has progressed to the point where pathological changes in the apex of the lung are revealed by the physical signs previously mentioned. This type is abortive.

The length of this paper does not permit me to go into the detailed methods of diagnosis; they are, moreover, readily available in standard texts. My purpose is, rather, to point out that much of tuberculosis is going unrecognized until the pulmonary symptoms have become well advanced and the patient's chance of recovery proportionately reduced. It is an axiom in tuberculosis therapy that the earlier the diagnosis and the earlier the institution of curative measures, the greater the likelihood of arrest and cure. This is a fact that every physician should know and heed; it is the main purpose of this discourse. A practice devoted almost exclusively to the study of tuberculosis in sanatoria, in clinics, in general hospitals, and in private office has enabled me to make my deductions and formulate my opinions in regard to the therapeutic, the sociological, the economic, and the familial aspects of this disease, and I say with confidence born of conviction that if we would give to this problem the study which its importance warrants, and imbue our patients with the hopefulness which experience justifies, we would not only ease amenable to treatment, but also reap a reward commensurate with our best efforts and most intensive study. We would not then so often witness that deplorable spectacle of the disorganization of the natural family relations, because some unfortunate member has been per-

suaded to enter an institution and thereby assume an expense which all too often can be met only by great financial sacrifice and the lowering of those standards of living in which, because of circumstances of birth, association, education, social or cultural attainment, they rightly count their due.

Considering the indefiniteness of diagnostic criteria, it is quite understandable that the masked tubercle often perplexes the most astute diagnostician, and is oftentimes the cause of honest differences of opinion between physicians equally eminent and whose opinions are equally worthy of respect. Patience and tolerance would always temper our judgment if we would only realize that the secret lies hidden for the present within the lymph node, and the disease is suspected chiefly from the effects of the biochemical products which are poured into the lymph stream, and that the patient's symptoms are the chief evidence upon which opinion rests. The more complete picture must be inferred and correct inference will depend upon the logical deductions of the attending physician. Considerable importance should be attached to the fact that 80 per cent. of patients suffering from tuberculosis have a history of prolonged intimate contact with open tuberculosis. Especially is this true if the symptoms are sequelæe to measles.

There are five conditions with a toxic symptom-complex closely resembling that of the active masked tubercle, and the correct diagnosis of which is of sufficient importance to demand special mention. I will give only a passing word to post-influenzal catarrhal inflammations of the respiratory tract and non-tuberculous infections of the head, neck, and mediastinum. Search these fields for concealed foci of infection. Examine the heart carefully for evidence of mitral stenosis—much more common than it is generally thought to be. Look for a bulging or prominence of the ribs over the heart. In the early stages there is often no murmur. Be suspicious of an over-sharp first sound, frequent attacks of tachycardia, and a presystolic roughening felt in the region of the apex and ending sharply with the apex beat (preceding often by years the valvular murmur), and possibly a slight dyspnea on exertion—more than that of the average person under a like stress. The murmur may be brought out by having the patient hop (*both feet leaving the floor simultaneously*) twenty-five to fifty times. By laying the patient on his back a murmur which was scarcely heard in the upright position may become clearly audible. Both murmur and roughening may disappear for days. If possible, place your patient under the fluoroscopic screen so that the lateral posterior aspect of the base of the heart is brought into view, when a succession of wave-like contractile impulses can often be detected passing from above downward toward the ventricles. Similar impulses may be seen in hyperthyroidism. Inasmuch as mitral stenosis often produces catarrhal symptoms of the respiratory tract, such as cough, râles, and intrathoracic distress, we can readily understand that the mistaken diagnosis of pulmonary tuberculosis may be made. Pyelitis not infrequently complicates the picture—especially is this true in children. An examination of the urine, taking due precautions against extraneous contamination, should dispel doubt.

And last but equally important are those instances of hyperthyroidism in which, no enlargement of the gland being demonstrable, we overlook the fact that it may, nevertheless, be hyperfunctioning. However, in preminimal tuberculosis there is little or no departure from normal in the metabolic rate; the pulse rate is seldom more than 90 to 100; the temperature varies between normal and 99½; the patient usually (there are exceptions to this) gains in weight if put to bed and his appetite maintained, and there is no marked spread between the systolic and diastolic pressures. The pulse is soft, the eyes are gentle, and there is an entire absence of stare or fixed look in the gaze, even though the eyes may be bright. The patient tires easily and lacks endurance. Tremor is rare in tuberculosis, and the movements requiring the co-ordination of small muscles are deliberate and without undue effort of control. However, pulmonary tuberculosis and hyperthroidism and mitral stenosis may co-exist.

I have made frequent references to the use of tuberculin as a diagnostic agent; perhaps in closing it would be well to give the technic as we practice it.

The three most generally practiced are the subcutaneous, the intracutaneous or Montoux, and the von Pirquet. The only difference be-

tween the latter two is that the tuberculin in the former is placed into the skin by means of the hypodermic needle, whereas the von Pirquet is by scarification. I will say, however, that I have secured a positive Montoux on patients on whom the von Pirquet has been negative.

All the tuberculin tests are closely related—are, indeed, fundamentally the same in that tuberculin is used in all instances to prove the presence or absence of tuberculosis infection. They differ in the technic necessary to produce their respective reactions and in the reaction characteristic of each.

In the subcutaneous test the method used is about as follows: First, the patient is taught to take his temperature and read his thermometer. He is told that he should remain in a comfortably warm room for at least half an hour before proceeding with the test—that it takes about that long to warm his mouth, if he has been breathing the cold air of outdoors for a considerable time. The thermometer must be well buried in the mouth for at least five minutes *by the watch.* During that period he must not speak, but keep his lips tightly closed. At the expiration of the allotted time the temperature is recorded and the mercury shaken down to normal. In two hours the process is repeated. This continues throughout the waking hours, from 8 A. M. to 9 or 10 P. M. On days of even calendar date the readings are made on the even hours and on odd calendar days on the odd hours, extending over a period of about six to ten days.

You are now ready to proceed to the next step, which is the preparation of your tuberculin dilution for diagnostic purposes. Take 0.1 c.c. of old tuberculin Koch and add 9.9 c.c. of normal saline solution. This makes a dilution of 1 in 100 and 0.1 c.c. equals 1 milligram of tuberculin. Diagnostic dosage varies from 2 to 8 milligrams and is dependent upon the age and vigor of the patient, the smaller doses for the less vigorous. Koch established a maximum of 10 milligrams.

The technic of administration in the subcutaneous method is that of a simple hypodermic injection, but convenience and accuracy are enhanced by using a tuberculin syringe. In the Montoux method the injection is made into—not through—the skin (intracutaneous).

The reaction becomes manifest in from 8 to 48 hours, and may be described as *(a)* local, *(b)* focal, *(c)* general, or *(d)* negative.

The *local reaction* consists of nothing more than a mild inflammatory reaction at the site of injection.

The *focal reaction* consists of an area of inflammation at the site of the infection. There may be localized soreness over the chest or a sense of constriction: some fugitive localized râles may appear where they formerly were not, or a low tympanitic note not noticed before the injection was given. As is well known there may be an increase in density of the shadows about the foci, demonstrable on the x-ray plate.

The *general reaction* is characterized by a sudden rise of temperature above the mean established by the two-hour readings, chills or chilly feeling, malaise, headache, muscular soreness, and a quickened pulse. A severe reaction may even necessitate a day or two in bed. These symptoms quickly subside and the condition returns to that existing prior to the injection.

In interpretation I would stress this caution: Your patient may be tuberculous and yet not react to tuberculin if antibodies are not present—said to be a bad prognostic sign. The absence of antibodies may be temporary, hence the advisability of repeating the test several times—and with increasing dosage—before drawing final and negative conclusions.

The von Pirquet test is more especially suited for children. Use old tuberculin of Koch, undiluted. Cleanse and scarify the skin in two places. The scarification should be just deep enough to penetrate the epithelial layer, as in vaccination for smallpox. Place one drop of tuberculin on a scarified area; leave the other clean to serve as a control. A positive reaction is indicated by a localized hyperemia at the site of inoculation.

From what has been said the following conclusions are submitted for consideration:

The masked tubercle represents a glandular tuberculosis, which is not necessarily confirmed by physical signs but should be suspected from clinical symptoms.

If these symptoms appear in a subject who has been exposed to prolonged and intimate contact, your surmise that they are due to an active tuberculous process will be right four times out of five. Obscurity of diagnosis may be clarified by tuberculin inoculations.

The prevention of pulmonary tuberculosis rests upon the recognition of this preminimal state and the institution of proper treatment to bring about its arrest and cure.

Before fixing upon the diagnosis of masked tubercle the following differentiation should be made: Post-influenzal catarrhal infections of the respiratory tract; focal infections of the head, neck, and mediastinum; mitral stenosis; pyelitis, and hyperthyroidism.

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THE PLACE OF THE PRACTICING PHYSICIAN IN SCHOOL HYGIENE*

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I do not intend to discuss the place which the practicing physician does occupy, but I wish to give as concisely as possible this afternoon the place which I think the practicing physician could occupy in a School Health Program. I am assuming that such a program is a definite need of the schools, that the health of the school children as a group concerns the community very vitally; first, because a group of individuals always constitutes a Public Health Problem; secondly, the community supports at a tremendous expenditure of money, time, and effort its public schools whose objective is the education of the child. This objective may be attained only by the physically healthy child. The cost of absenteeism, the financial drain of repeaters due to physically handicapped condition substantiate this statement. As a citizen, interested in community problems, administration taxes, etc., the physician must be concerned with the health of the school child.

I am assuming that the physician has a particular interest in every school problem that has a medical aspect and that the school has need of the physician in all its problems which present a medical aspect. As a member of the medical profession, the physician has definite rights in the School Health Program and definite duties and responsibilities. Surgeon General Cummings says, "The very fact that we are doctors, that we are so licensed by the state places us out of the rank of ordinary citizens, gives us privileges and imposes upon us definite responsibilities."

Assuming then that the schools are definitely hindered in attaining their objective, the education of the child, by medical problems and that the physician both as a citizen and as a member of his profession is interested in these problems, I wish to state briefly a few of these problems and to suggest how the physician may aid in overcoming them. These problems have been stated many times and suggestions have been offered for their solution. The repetition is justified by the continued existence of the problems.

The schools are faced constantly with the problem of contagion—communicable diseases and such disorders as impetigo, scabies, ringworm and pediculosis. The communicable diseases such as diphtheria, scarlet fever, etc., may be followed by mortality or by a morbidity which leaves the child permanently handicapped—notably by the heart disorder of diphtheria and the nephritis of scarlet fever. These diseases in epidemic form may disorganize a school for months due to absenteeism involving great loss of time and money and necessitating frequent repetition of work. Each school should be protected by some definite workable plan in the control of contagion. The question of impetigo, scabies, etc., is usually one of personal hygiene and is often associated with other problems of personal hygiene, which are school problems in so far as they affect the welfare of those about them. Some children are sent to school in such a filthy condition and smelling so offensively that no teacher should be expected to put up with it. The inertia of the mother who says "Johnny is no rose, teach him, don't smell him" must be overcome.

A second big problem is that of the school building itself which may be hazardous to the health of the school child. The safety and health of the school child may be jeopardized by inadequate fire protection, improper heating facilities, illumination and ventilation, insufficient toilet facilities, soap and water for washing the hands. Even the drinking water may not be safe. Each of these subjects is a topic in itself and the knowledge of them far outdistances the use to which the knowledge is put. With this problem too, may be considered that of the hygiene of instruction which has a direct bear-

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ing on the health of the child. In this is concerned the length of the school day, the need (or not) of recesses, the length of the noon hour, the school lunch, the arrangement of the subjects during the day and amount of time for each. Too often these are arranged to suit the convenience, the preferences, or the needs of the teachers.

And the last big problem is the health of the individual child. I am not saying this is a problem the school has to solve, but I am saying that it is a problem that the school has to face. To realize how far below the ideal of physical health many children fall one needs but to read the records of school examinations of thousands of children—the numbers who are far below average weight due to improper diet, faulty health habits or uncorrected remediable defects; the numbers with defective vision, eye strain or strabismus who go from year to year with no relief or correction; the acute and chronic running ears which are receiving no medical attention and may never have received any; cases in which hearing is becoming progressively diminished and nothing is being done to check it, no effort is made to learn the cause which may be only a plug of wax or a foreign body; the numbers with infected tonsils or obstructive tonsils and adenoids who are almost invalided by them. Dental surveys reveal the appalling conditions which are found in the mouths of many little ones—decaying, broken teeth, often rotten shells—inflamed, ulcerating infected gums, foul breath odor, nauseating to those close by. In some schools over ninety per cent of children have been found in need of dental care. Children suffering from chronic bronchitis or repeated attacks of acute bronchitis are found in nearly every school. Even cardiac cases go year after year to school with no medical supervision whatever. Faulty posture and pronated feet are so common that one wonders at times if they must not be the normal and the examiner's standards too high.

Such then are the health problems of school life and the solution of them lies in educational, preventive and corrective measures. The school must or at least should look to the medical profession for direction, and the success of any program depends upon the mutual co-operation which exists between the school and the medical profession.

It is recognized that much ill health is a result of faulty living and that it may be avoided by correct habits of living. This recognition has led to the great interest in a Health Educational Program in the schools; a program which will impress upon the child the right habits of living —mental and physical; a program which keeps before the child the ideal of mental and physical health and stresses health as one of the great objectives of education. A program of Health Education must be based upon actual needs and not upon general theories. Educators and physicians saw clearly the need of keeping instruction within the bounds of scientific knowledge. The little knowledge of an enthusiast was likely to be a dangerous thing. Accordingly in 1924, the Joint Committee on Health Problems of the National Educational Association and the American Medical Association formulated a Health Educational Program for the schools. Their report is in book form under the title Health Education and gives authoritatively and clearly the fundamentals that must be the basis of any School Health Program. The subject-matter is the contribution of the physician—the ways of presenting the subject are left to the educator. As in all other branches of education, the ability of the teacher and the interest of the pupil determine the ultimate good derived. In this field there is little work asked of the practicing physician but he may render service as advisor to the school board in these matters.

The application of preventive measures to the school health problem was first made in the attempt to control the spread of contagion in the schools. Communicable diseases may appear suddenly in a school and may run through it, disorganizing school work and leaving permanently physically handicapped children. The physican has a definite role in the prevention of such an outbreak—the responsibility is surely a medical one and warrants the use of all means of controlling contagion. Every community can have some definite plan, formulated by the physicians, a plan which takes into account all approved methods of control and which is workable. I might suggest a simple plan.

First—*Immunization.* The value of immunizing against smallpox and diphtheria (I might include scarlet fever) is known. The community then should be encouraged by its physicians to take advantage of these means of protection,

especially in the younger children to whom the diseases are so often fatal. Immunization should not be the foot ball it so frequently is between interested lay organizations and disinterested medical men. The physicians of each community should decide for themselves whether the work shall be done individually or in groups. There is no doubt that it is the group immunization that reaches the masses.

Second—*Control of Cases.* Contagious diseases are most effectively controlled by the use of quarantine measures. Most State Boards of Health have minimum requirements which are binding on the separate communities. All cases of contagious diseases should be made to observe quarantine. Often the physician has to be his own health officer if there is no Public Health Officer. Unless quarantine is observed, it is very difficult to prevent an epidemic. It is not uncommon for people to deliberately conceal a case of smallpox in order to avoid quarantine.

The school should be notified of all contagious cases if it is to adequately protect the children in its care. It would be helpful if the physician would notify the principal of a case of contagious disease where there is no Health Officer. It is necessary, too, to report all known "contacts" so that the school may do its part in enforcing quarantine and in excluding such contacts from school. It is in the reporting of contact cases that most communities fall short. In a recent report of the Chicago Department of Health it is stated that not 25% of the contact cases are reported and that only a very small percentage of these receive prophylactic immunization.

In a community which has school medical supervision, the cooperation between the family physician and the school medical staff is the most effective means of controlling contagion. The school will exclude every child who returns without a certificate from his physician, stating that the quarantine period is up and that the child is in a condition to return to school.

This plan for the control of contagion in the schools is workable in any community and is effective only to the extent that it is followed—judged by the number of immunized children, the number of contact cases reported, and the observance of quarantine cases by the diseased cases and contacts.

There are other forms of contagion, very distressing to teachers and children which the physician may help to control—such as impetigo, scabies, pediculosis. For example, if a child has scabies, it is not sufficient to instruct the mother in the care of the particular child, but she should be informed of the contagious nature of scabies and of the necessity of preventing further spread in her own home and in school.

The second school health problem is in the school itself—in the building equipment and in the character of the instruction. That same Joint Committee of the National Educational Association and American Medical Association which was mentioned in relation to the School Health Program has given much time and effort to this phase of the problem. Its first report on the "Minimum Health Requirements for Rural Schools" has led in many states to legislation which requires the approval of the plans and the location by a competent State Official or Board before a school board may erect a school house. Naturally, few physicians are or have time to be in immediate touch with this problem. But it is very simple for them as interested citizens of a community to require that the buildings, etc., reach at least minimum standards of safety, heating, ventilation, illumination, drinking facilities, etc. If the physician is willing to serve the school board in an advisory capacity, he can render valuable service. School life we know puts a strain on the health of the child, so the length of day, length of class period, recesses, etc., should be such that the child suffers the least possible strain.

The third and biggest health problem that presents itself to the school is that of the physically and mentally handicapped child. The health of the child and the care of the child have always been looked upon as parental responsibilities and the school has attempted to teach whatever was sent to it in the appearance of a child over six years of age. The emphasis of school educational objectives has changed, however, and the health of the child is considered now the first educational objective. This change of emphasis was very largely due to the appalling physical condition of the World War Recruits with their incredible number of remediable but uncorrected defects and faulty habits of living, revealed in the army reports. The school still recognizes the parental responsibility for the health of the child, but it now recognizes too its own right to insist that any child be in the best

mental and physical condition possible for that individual child. Toward this end the school is constantly striving—parental inertia renders progress slow—but without a doubt, there is progress. The aim is right and should not be abandoned.

One need not ask what the role of the practicing physician is in regard to the physically and mentally handicapped child. It is to him only that the parent should look for guidance—the correction of remediable defects, and advice regarding habits of living, training, etc. That would be the ideal situation and there would be no need for anything else if the ideal situation existed; i. e., all children in need of medical attention are getting it. Several factors militate against the achievement of this ideal. To mention a few—1. Parental inertia and indifference—poor home care and training; 2. Parental ignorance of the condition or failure to recognize the importance of the physical or mental handicaps; 3. Poverty with absolute inability to pay for the necessary care, in which case they do not seek it.

And it is to locate and overcome these obstacles to the normal health of the child that school health supervision has been undertaken. The work of the School Medical Staff does not, at least should not, infringe upon the rights of the practicing physician and does not invade private practice as it is sometimes accused of doing by some who make no effort to acquaint themselves with the aims of school health supervision. The work of the school physician and the follow-up work of the nurse accomplish very little if they do not have the whole-hearted support of the practicing physician. I am assuming that the school physician is well trained and one whose judgment and ethics may be respected.

The chief duty of the school physician is in finding the physical handicaps to normal health. He sees vast numbers of children who would otherwise not be seen by a physician. He records findings; frequently does not interpret them. If the child is receiving medical attention, that fact is noted on the card. If no effort toward correction is being made, the family is urged to consult a physician regarding the defect. It is at this point that the obstacles referred to above have to be overcome. And difficulties would be fewer if a friendlier spirit of cooperation existed between the School Medical Staff and the family physician. The local physician need not agree with the school findings, but he should certainly extend the same courtesy to the school physician that he would extend to another physician. The relationship might be such that each could freely consult the other. I am sure that the school physician can offer at times valuable information which he has acquired from the teacher or from the neighbors. It is possibly too much to ask a physician to notify the school that medical care has been given a child, but it would be helpful.

Where a nurse is in charge of school health supervision, she has to rely on her own judgment in regard to the physical defects to be reported. In most cases her efforts are well directed, certainly well-meant, and the physician should not condemn her unreservedly for some error of judgment. The child has benefited where there has been mutual cooperation.

Many communities have no school health supervision and here the schools look to the physicians for direct assistance in school health problems. The physicians interested in the care of children can adopt "Minimum Standards of Child Health" as physicians in Virginia have done and through educative measures encourage all mothers to reach the standards, so that every child reaches the highest level of physical health of which it is capable. The School Health Program can emphasize this need.

In conclusion I wish to mention a few of the outstanding contributions to medical knowledge which school health work has made and by which the physician may profit. 1. The value of toxin-antitoxin in the control of diphtheria has been established from the data collected in the immunization of thousands of school children. 2. Dr. Kaiser, from a survey of the Rochester, New York, schools, has shown the relationship of the tonsil to the onset and recurrence of acute rheumatic fever. 3. The weighing and measuring of school children have revealed alarming numbers and degrees of malnutrition. 4. Extensive dental surveys have shown dire need of dental attention in most communities. Some communities had need of attention in as high as 98% of its children. 5. And lastly, the permanently physically handicapped child can be salvaged by education and therapy combined. We have seen the establishment and growth of schools for such children to which the paralyzed, the blind, the feeble-

minded, etc., are being brought in constantly increasing numbers.

We have seen then that the school has great need of the practicing physician and that he in turn can derive benefit in his work from many things that the school has to offer.

THE PATHOLOGY OF HERNIA FOLLOWING CATARACT OPERATION*

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In a brief review of the senile changes which take place in the tissues involved in a cataract operation, we note that the cornea becomes less refractive and slightly cloudy with deposits of cholestrin and other lyphoids.[1] The sclera becomes thickened and fatty degeneration takes place throughout.[2] The sclera and cornea being non-vascular structures do not suffer active inflammatory changes so characteristic of vascular tissue.[3] Traumatic and toxic inflammation are common in the iris, certain forms of cystic degeneration take place.[4] And cell death in the pigment granules results in deposit of pigment over the endothelial lining of the anterior chamber.[5] Aseptic wounds in the iris show no tendency to granulation of tissue or scar formation.[6]

Proteins in the anterior chamber produce certain inflammations.[7] In cases of sudden loss of the aqueous humor the anterior chamber is quickly filled with lymph which is rich with proteins and other irritating substances which are not normally found in the aqueous humor.[8]

This iris, being disc-shaped, is very easily misplaced and moves by the slightest pressure made on its surface. An incision in the conjunctiva is followed within the first 24 hours by a marked dilation of the blood-vessels and an exudate filled with polymorphonuclear leucocytes; when healing takes place there is a rapid proliferation of epithelial tissue which fills all spaces opened to its invasion. If for any reason the wound suffers delayed healing, there takes place a proliferation of epithelial cells into the wound which, if extensive, may interfere with proper healing of the scelera.[9]

In the foregoing paragraphs, an attempt has been made to review the pathologic and senile changes to which each structure is subject, all of which may, at times, be involved as factors in the causation of delayed healing, separation of a wound, or hernia formation following cataract extraction.

The healing of a cataract incision depends upon several factors: First, the health of the tissue involved; second, the adaptation of the wound edges; third, the influence of muscular actions upon the eye which may tend to separate the edges of the incision, such as a movement of the lids, or ocular muscles, particularly the superior rectus and the ciliary muscles. Formerly most cataract operators preferred to make their incisions wholly within the cornea. This provided poor support to the wound edges, which were easily separated and iris incarceration or hernias were more common than today.

The structures which may be caught into the wound during, or following, a cataract operation are the iris, the vitreous, the lens capsule and the ciliary body. The iris is most often lodged in the wound alone, or with the vitreous. If the capsule or ciliary body is caught between the edges of the incision, the iris is almost always carried with them. These structures become involved in the incision either during the operation or shortly after. If during the operation, they may be often times freed by means of the spatula or spoon, or by gentle massage over the incision and, if successfully freed, may remain free during the process of healing; or they may reattach themselves later, due to a reopening of the wound with some leakage of the aqueous; or less commonly, due to an inflammation of the parts involved.[10]

*Read at Annual Meeting of Illinois State Medical Society, at Peoria, May 22, 1929.

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An iris prolapsed in the wound during operation always has a greater tendency either to reattach itself to the wound, or to become incarcerated later than an iris which has never been pulled into the wound.[11]

Fig. 1—Cataract removed. Eye otherwise normal.

Fig. 2—Gap produced by action of ciliary muscle.

The implication of the iris with the wound may be classed in three groups; in the first group the iris is adherent to the wound but is not caught in its edges; it is held there by an exudate of fibrin and leucocytes which result in the closure of the sinus of the anterior chamber at this point. This usually causes no further trouble, or may later result in glaucoma, or inflammation which may recur or result in uveitis, or even panophthalmitis. When the iris lies in contact with the wound for a short time, a fibrous exudate is thrown out which connects it and causes adhesions of a permanent nature.[12]

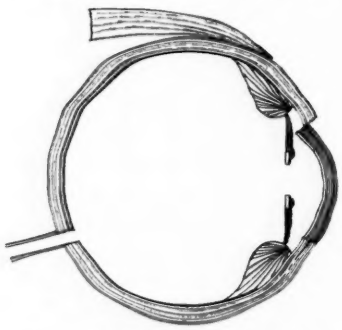

Fig. 3—Edges of wound misplaced due to action of superior rectus muscle.

Fig. 4—Adhesion of iris to wound.

In the second group the iris is caught or incarcerated between the edges of the wound. It may extend completely through all the cut layers, but usually, however, it is caught only in the posterior layers of the incised tissue since in most cases of complete incarceration the structure becomes herniated and belongs to the third group. The action of the ciliary body may have something to do with the formation. Its action in pulling on the scleral spur draws the deeper layers of the sclera backward allowing the iris to protrude partly into the sclera. When this occurs, a bulging scar results. The superficial layers of the tunica fibrosa are united and a permanent gap results in the posterior layers which is lined with the iris and may contain vitreous or lens capsule or both. The iris stroma

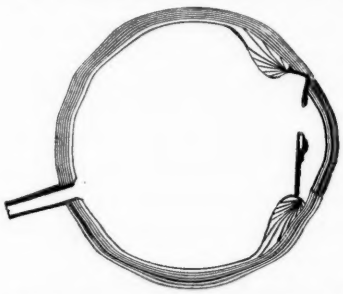

Fig. 5—Iris caught in gap produced by action of ciliary muscle.

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proper atropies and the pigment layer remains. This produces a weak spot in the sclera which may spread more or less, depending upon the interocular tension, but which never results in the re-opening of the wound. Various degrees

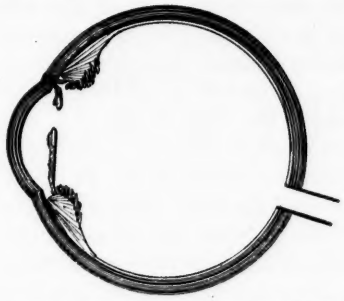

Fig. 6—Complete incarceration of iris.

of astigmatism may result from this complication, or inflammation of various degrees, up to a severe uveitis or even panophthalmitis.

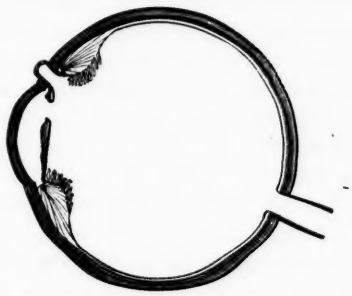

Fig. 7—Complete hernia of iris.

The third group involves the more complicated cases of hernia formation. This usually follows when the iris is completely prolapsed through

Fig. 8—Gap filled with proliferated epithelial cells.

the wound, due, especially, to a separation of the wound edges either by muscle action or internal pressure. These cases are the most damaging type. Here astigmatism is most extreme, running sometimes as high as 11 diopter in my experience and perhaps even higher in other reported cases. The hernia, usually consisting of the iris and vitreous and in many cases lens capsule, is often covered only with con-

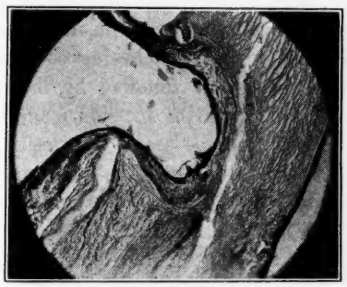

Fig. 9—Large gap in the sclera lined with the iris.

junctiva or it may protrude through the cut edges of conjunctiva, its further progress being halted only by the pressure of the upper lid. Later these hernias are covered by the proliferat-

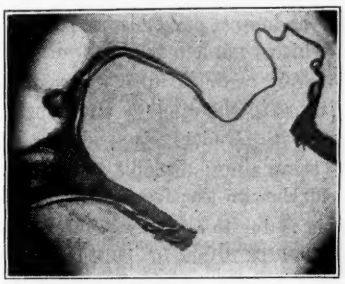

Fig. 10—Complete hernia of iris and vitreous.

ing epithelial cells of the conjunctiva.

If no attempt at repair is made, the hernia either remains in a stationary condition, or may

Fig. 11—Iris pigment in wound.

become so large that the lid cannot close over it; or it may become smaller due to the con-

striction of the scar tissue. Recurrent inflammations are quite common, and may go to any or all stages even to the total loss of the eye.

The writer made a study of prolapses following the various forms of incision in a series of over 1,300 cases, operated on during a period of six weeks in Dr. Holland's clinic in Shikarpur, India, in 1927, with the following conclusions: The corneal incision is followed by more prolapses and hernia than the incision made in the limbus or sclera, and the use of the conjunctival flap tends further to lessen the percentages of prolapses.

A DISCUSSION OF GRADENIGO'S SYNDROME*

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JOLIET, ILL.

A discussion of Gradenigo's syndrome is necessarily a discussion of otitis media because otitis media is the pathological condition which directly or indirectly produces the two secondary conditions: abducens paralysis and fifth nerve irritation, which complete the picture. It is my intention merely to touch upon a few of the interesting points in the etiology and prognosis.

A patient with Gradenigo's syndrome has two significant complaints: diplopia and severe unilateral headache in the fronto-parietal region. The diplopia is due to a paralytic internal squint resulting from paralysis or paresis of the abducens nerve on the same side as the otitis media. The headache is due to irritation of the fifth nerve, gasserian ganglion on the same side.

How does otitis media do these two things, paralyze the sixth and irritate the fifth nerve and where does it do it?

A good many theories have been advanced. Some say it is a toxic process; others, a reflex process. Others explain it on a mechanical basis and the latter certainly seems much more likely.

Where is the sixth nerve paralyzed and the fifth irritated? It seems logical to assume this occurs where they are near together and where they are not closely accompanied by the other cranial nerves or we would have them involved also. It is also logical to suppose that the sixth nerve is much more likely to be paralyzed where it is in closely confined walls of a more or less rigid nature where slight swelling will produce pressure.

These conditions are fulfilled in the region of Dorello's canal, which is the space between the apex of the petrous portion of the temporal and the lateral wall of the body of the sphenoid. This space is roofed over by the dense, resistant petro-sphenoid ligament extending from the posterior clinoid process of the sphenoid to the sphenoidal spine of the temporal bone.

Dorello's canal is occupied by the sixth nerve and the inferior petrosal sinus. At the anterior end of the canal the nerve lies just lateral to and slightly above the sinus and lateral to the nerve and slightly above is the superior petrosal sinus. At this point it lies between two venous sinuses and very near by is the gasserian ganglion separated from the sixth nerve only by the superior petrosal sinus.

Thus we have first, the sixth nerve running for a short distance through a canal with rigid walls accompanied by the inferior petrosal sinus. Anteriorly as it emerges from this canal the nerve comes in close proximity to the gasserian ganglion and superior petrosal sinus.

One of the best discussions of the etiological process is an article by Charles E. Perkins written in 1910, in which he collects 95 cases reported up to that time.

In thirty-three cases the cause of the abducens paralysis was ascertained with reasonable certainty to be sinus thrombosis, two; meningitis, three; labyrinth disease, four; abscess in posterior fossa, nine; in middle fossa, two; osteitis of petrous tip, thirteen.

It can be seen from the foregoing that he does not attempt to ascribe the cause to any one process but recognizes a multitude of ways in which otitis media may lead to sixth nerve paralysis.

A sinus thrombosis produces oftentimes inflammation of the sinus walls and consequent swelling. In those cases in which the thrombus extends to the petrosal sinuses pressure on the sixth nerve is likely to occur as well as irritation of the gasserian ganglion.

Meningitis may, of course, involve the meninges over this region as well as any other.

Extra dural abscess extending deeply will cause edema and swelling of the dura beyond the limits of the abscess and may cause pressure even where the abscess does not produce it directly.

*Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Society, Peoria, May 22, 1929.

Osteitis of the petrous tip: In very pneumatic temporal bones various cellular connections extend deeply into the petrous tip and it is in this type we have extension directly through the bone to the tip producing osteitis in this region.

From the foregoing it is seen there are various ways in which otitis media may produce the symptoms under discussion.

In regard to prognosis in Gradenigo's syndrome we know that these cases vary tremendously in their general prostration and seriousness just as do other cases of otitis media. It would seem that the prognosis depends not so much on the presence of Gradenigo's syndrome but on the way it is produced.

If produced by the process of meningitis it is bad; if produced by sinus thrombosis it is unfavorable; by extradural abscess, if the abscess is evacuated, it is reasonably good. If produced by extension of the disease through cellular connections to the petrous tip, it is generally good. If produced by brain abscess, it is unfavorable. There are other routes which the inflammation might take to reach the area under discussion; but it would take too long to discuss many of them. The above is sufficient to show some of the possibilities and also to illustrate that the prognosis is favorable or unfavorable not because there is a Gradenigo's syndrome, but because the syndrome is produced by a relatively mild complication of otitis media or by a very severe one.

I have seen four patients with Gradenigo's syndrome, three in our own practice and one on Dr. Schoolman's service at the Eye and Ear Infirmary. Three of these recovered and one died of meningitis.

Our most recent case occurred in a girl of 12 years who was taken sick with ear ache the first week in January. They had no physician for four weeks and the child had some headache, fever, and pain in the ear at varying intervals during that time. Five weeks after the onset she began to see double. Two days later examination revealed an acute otitis media left with Gradenigo's syndrome. X-ray showed a cloudy mastoid. Immediate operation was done and the typical findings of an acute mastoiditis disclosed in a temporal bone of good cellular development. Two days after the operation, the diplopia was gone and the eyes appeared normal. She went on to an uneventful recovery.

DISCUSSION

Dr. H. L. Ford, Champaign: It has been my privilege to see three cases, two at the County Hospital and one in private practice, and I feel it is not always a meningitis that causes it, although most of the text-books classify it as due etiologically to localized meningitis. It seems to me that it must be due to pressure, as well as to meningitis, from involvement of the mastoid cells in this region.

Dr. George W. Boot, Chicago; These cases of paralysis of the sixth nerve are decidedly interesting. One case I saw, a boy of ten, had struck the right mastoid against a railroad tie, and had paralysis of the sixth nerve and a herpes under the eye. Another case was a woman who had been struck by an automobile, who had paralysis of both sixth nerves and hemorrhage in the floor of the fourth ventricle at a point where the nuclei of the sixth nerves are in close contact.. Another boy of fourteen had paralysis of both sixth nerves and paralysis of the fifth nerve so that he could not move the eyes upward. After evacuation of a brain abscess he recovered.

Dr. M. H. Cottle, Chicago: I examined postmortem this year a case of Gradenigo's syndrome which showed a well developed normal pneumatic mastoid which had a continuation of the antrum, opening directly into the floor of the middle fossa. At the tip of the apex of the bone there was an abscess of the dura, which had probably been present for the three months duration of the disease. The ear drum was normal. There was a paralysis of the facial and severe pain along the nerve.

Dr. George Woodruff, Joliet (closing): I have been much surprised to note how little mention is made of this condition in the literature. Some of the standard text-books do not mention it at all. I have not examined all of them. There are quite a few cases where this syndrome did not appear until a month after the onset of the disease, or until after operation, and yet a good many went on to recovery without any surgical intervention.

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THE X-RAY IN THE DIFFERENTIAL DIAGNOSIS OF BILE TRACT DISEASE*

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The roentgenological examination is diagnostic in itself for a large number of diseases.

*Read before the North Side Branch of Chicago Medical Society February 2, 1928, and Wayne County Medical Society, March 26, 1928, Richmond, Indiana.

Occasionally it is impossible to make a definite diagnosis, nevertheless the x-ray examination does show the presence of a lesion, and directs the clinician's attention to it. The fluoroscopic screen examination is of the utmost importance in eliciting a differential diagnosis of bile tract disease. A careful correlation of the x-ray findings with both the clinical history and the physical and laboratory data usually makes a diagnosis possible. The clinical picture of bile tract disease may be produced by many pathological entities. MacCarty[1] called attention to the fact that: "The gall bladder, liver, duodenum, stomach and pancreas are embryologically, anatomically, physiologically and pathologically closely related." It is therefore logical to suppose that the clinical picture may be likewise. Only the more common lesions simulating bile tract disease will be considered.

The advent of cholecystography has undoubtedly established one of the most valuable contributions to the sum of our diagnostic methods in the study of gall bladder disease. Due to the toxicity of the drug and the rigid technique required, many clinicians have discarded the intravenus method of administration of the dye, tetraiodophenolphthalein, as described by Graham and Cole, preferring the oral route instead. With the exception of approximately two per cent. of the cases the oral method of cholecystography is very reliable.

The oral adiminstration of the dye is contraindicated in obstruction at the outlet of the stomach, in hyperemesis, in advanced cirrhosis of the liver, and in obstruction of the common duct.

The oral method introduces no element of doubt in the diagonsis when the patient is under definite control, when all factors are taken into consideration and the technique and management are exacting.

Although a roentgenological examination of the liver is not often requested by clinicians, very useful information may sometimes be elicited by this means. Thus it is possible to determine certain abnormalities of size, position and form.

An increase in size of the liver may be due to cirrhosis, hepatitis, hyperemia, abscess, cyst, malignancy and syphilis. In portal cirrhosis the liver may be large with smooth borders and hard when palpated, whereas in biliary cirrhosis the liver may be enlarged, but soft on palpation.

Hyperemia is characterized by an increase of the liver volume, and radiographically, one may see a dilated decompensated heart.

The diagnosis of liver abscess is possible in most instances if one takes a correct history, for upon it must be based the diagnostic procedure and the interpretation of the findings. The roentgenological features of liver abscess are:

1. Elevation of the dome of the diaphragm, usually the right. The degree of elevation depends largely upon the size of the abscess and its nearness to the upper surface of the liver.

2. Restriction in movement of the diaphragm.

3. A lung reaction is frequently seen, usually when the abscess is near the diaphragmatic surface, and in some cases as has been noted by Pancoast,[2] the time of onset appeared simultaneously with the diaphragmatic reaction.

A rather sudden increase in the elevation of the diaphragm in a case being serially studied may be a sign of rupture of the abscess under the diaphragm. Whipple[3] in a review of over one thousand cases of subphrenic abscess states that the focus of infection was primary in the stomach in twenty-five per cent., the appendix in twenty-one per cent., the bile tract in sixteen per cent. and the duodenum in five per cent. The other abnominal organs and the chest are foci of infection much less frequently. The x-ray features of subdiaphragmatic abscess are:

1. The right leaf of the diaphragm is usually definitely high and fixed. Frequently one sees gas below the diaphragm with often a fluid level which changes with the position of the patient, however, free fluid and gas are often not visualized.

2. Lung reaction is frequently seen.

Diaphragmatic pleurisy must be considered in studying subphrenic abscess. The roentgenological examination shows an elevated diaphragm. Free fluid and gas are absent. There is an absence of the lung reaction. Occasionally, diaphragmatic pleurisy may go on to fluid or pus formation.

Hydatid cysts of the liver, although rarely seen in this part of the country, must be considered. They are visualized when the walls of the cyst are calcified. The daughter cysts often are seen at the vicinity of the mother cysts ranging in size from a hen's egg to a sago particle. A re-

action to the Casoni test and a definite osinophilia in the blood films are present.

In cancer one notes an increase in size of the liver volume with nodulation along the diaphragmatic borders.

One hundred cases of tertiary syphilis of the liver were studied by MacCrae and Caven,[4] and of the twenty-four which came to death, only one was due directly to lues. Sixty per cent. of the cases occurred from the age of thirty-one to fifty years. Roentgenologically, the findings of a relatively marked enlargement of the left lobe as compared with the right, associated with a hard liver whose surface is uneven, should always suggest the possibility of syphilis. A Wassermann from the blood or tapped peritoneal fluid will verify the findings. The therapeutic test of mercury and iodide is often striking.

Hepatoptosis may be mistaken for hypertrophy. The hepatic organ is normally in contact with the diaphragm. In ptosis the separation of the upper hepatic border from the diaphragm becomes apparent.

One must also bear in mind that a high position of the diaphragm may be a result of a phrenic exeresis.

In a large per cent. of cases a clinical diagnosis of gall bladder disease, duodenal ulcer and pathological appendix is, to say the least, very trying. I believe that the advantages of the fluoroscopic screen in the examination of the digestive tract can hardly be too strongly emphasized. Not only can one visualize the anatomical location of the organ and note the motility, peristalsis, the nature of the irregularities of contour, etc., but most important of all, one can elicit on palpation the symptoms complained of by the patient and definitely know the anatomical structure responsible. The screen also affords the convenient opportunity for inspecting the chest and abdomen for lesions which may affect the digestive tract reflexly.

Carcinoma of the stomach and head of the pancreas, as well as chronic pancreatitis, not infrequently simulates bile tract disease. The x-ray findings of gastric cancer are familiar to all of you; however, the indirect roentgenological findings of cancer of the pancreas are not so well understood. The malignancy often causes an obstruction to the third portion of the duodenum either partial or complete. One often sees reverse peristalsis at the point of complete or partial obstruction, and not infrequently at the screen examination one may palpate the tumor mass at the site of the duodenal horse-shoe. Roentgenologically, the diagnosis of pancreatitis is made by exclusion.

Duodenal stasis not infrequently very closely simulates bile tract disease. The obstruction may be due to duodenal bands, inflammatory adhesions and compression of the third portion by the superior mesanteric artery and its branches, and not infrequently a malignancy of the stomach occludes the third portion of the duodenum.

Hypo-acidity (achlorhydria, achylia) is often resultant from a depressive nerosis. This condition frequently simulates bile tract disease. The Graham gall bladder study reveals an absence of the gall bladder shadow which usually indicates gall bladder disease. However, if the patient is placed on hydrochloric acid therapy a Graham gall bladder study will now reveal that the gall bladder shadow is distinctly visible. The absence of the gall bladder shadow in the first instance in achlorhydria, is in all probability due to a relaxed sphincter of Odi allowing the bile to empty directly into the duodeum. It is therefore very important that the radiologist should take into account the clinical story of the patient when eliciting and interpreting the roentgen findings.

Pneumo-peritoneum or inflation of the peritoneal cavity with various gases is a spectacular means of demonstrating the abdominal viscera, and in selected cases, has a definite place in roentgenology.

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WHAT MUST BE DONE AND WHAT MUST BE CONTENDED WITH

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Physicians must be brought to realize that it is a part of their business to cause the public to utilize a better and more complete "health service." To bring about such a better health

service and incidently to improve the medical business there are certain things which must be done. Certain other factors must be actively contended with.

Even at the cost of repetition we must here state that we are not criticising those who have been and still are actively working in our interests. The public and medicine owe these men a large debt of appreciation. We can not expect them to do more than they are doing; these men perform every duty any other member performs, and in addition they carry on all other activities that many members shirk. We impose upon these men whom we seem to expect to carry on this work without pay from us even when it requires that they sacrifice money and energy from their own affairs.

Medical service must be made as efficient as possible. There are too many physicians who are unnecessarily slow in making examinations or rendering appropriate medical treatment. Compare the average service given in physician's offices with the instantaneous, smiling service given in first class hotels, restaurants, railway ticket offices, etc. In many instances these businesses depend upon the fact that the customer can step into the place of business and receive immediate, pleasant service. Undoubtedly certain large clinics owe their present size to having developed this feature of their service. If certain men are too lazy or too inefficient they should be urged to improve their habits. If some men are charging so little that they can not afford to give service they should be shown the error of their ways. If some feel their incompetence in certain respects the societies should provide instruction clinics for their instruction. If some men are seeing so many patients that their time for each is too brief their avarice should be censured.

In some instances a patient is charged too much for the service received, or his time is wasted, so that his job is endangered through his visits to his doctor. For example there are offices in which syphilis is treated. The treatment of this disease should be planned to include about forty visits a year to the office. Patients are often required to wait from one to three hours and we may presume that they thus waste eighty working hours during a year's treatment. This amounts to about ten working days. There is no justice in imposing this loss upon our patients. Surely a proper distribution of patients among physicians would be advantageous to both patients and physicians.

It has already been brought out that there should be intelligent, constructive propaganda in the direction of a wider use of health service. This should utilize all avenues of communication, such as word of mouth, radio, the movies, the stage, news items and by attractive plainly written printed matter upon subjects that laymen are interested in.

Bound up with medicine are several other businesses, including pharmaceutical and chemical manufacturers, retail druggists, medical publishers, supply and instrument dealers and others. At times various ones among these have "run wild" and exploited the public and medical practitioners. Whether hospitals, health resorts, nursing, cosmeticians and dietitians should be included is a matter of opinion. No agency has done as much to thwart these various exploitations as The American Medical Association by its various activities during the last twenty years. The work of this Association should be more widely appreciated and encouraged so that every newly proposed method and suggestion might be promptly investigated and evaluated, and instead of their introduction being left to the activity of commercial promoters, who awaken some hopes by unproven claims and reap a harvest before the true worth of the new method reaches a proper appraisement.

Organized medicine should adopt a consistent policy and set up rules, and see that these are lived up to by the lazy, while they are not set aside or ignored by the shrewd.

Charity should be placed upon a sensible basis, and patients should not be used by incompetent men to gain proficiency. Men who now seek proficiency by giving their services in dispensaries and clinics should associate themselves with a qualified teacher. The patient should be treated by the teacher and the teacher should be paid for his services. Society should pay for medical service just as it pays for fuel, food and shelter and the accessories of medical service. If any physician feels a call to give to the poor it is suggested that he donate money. Wouldn't it surprise every one if physicians did suddenly do as other men do, i. e., give money and then

receive it back in payment for services rendered? Still, why shouldn't physicians do just this?

The practitioners who cloak their own selfish activities in the mantle of charity and philanthrophy should meet the solidified condemnation of honest people, both within the profession and among laymen. The philanthrophies of great steel magnates and of great oil barons are only possible because their own business is conducted in a businesslike manner. If they felt so sorry for their fellowmen that they failed to demand full payment for steel and oil products, where would we all be?

Each individual physician should be conscious of the fact that he is a partner in the medical business and he should so act, that he does not injure the business in which he is interested or his partners. Each individual physician should exercise an active interest in medicine as a whole. Organized medicine should manifest an interest in the individual practitioner and his prosperity from the day he first inquires regarding medicine as a career until his death.

These may sound hard or impossible of accomplishment but they are not beyond the range of possibility. Whether they can be accomplished depends entirely upon the ability and determination of medical men.

Those matters that demand active counteraction include the present effort to socialize medicine, the present propaganda to relegate physicians to secondary place in health matters, the present efforts of laymen to grasp the business side of delivering health service to the individual citizen, the propaganda of interests that are admittedly antagonistic to medicine, and the harmful tendency toward the over growth of foundations and endowments as relates to medicine.

In most instances these activities that demand active opposition are well organized and financed and controlled by very shrewd managers. That many of these movements do finally collapse does not justify passive tolerance toward them. Each is replaced by successors and the parade goes on endlessly, so that medicine and the public face a continued opposition to full, efficient, adequate health service. Physicians are very much like a man set upon by mosquitoes. When the mosquito gets tired or filled up he will quit. When frost comes they will succumb in large numbers. Yet a man under such circumstances does not passively permit them to work their own pleasure.

At this point it might be interesting to give some thought in another direction. Today every effort is made to obliterate all evidence of sickness and death. This has progressed to such a degree of perfection that many citizens succeed almost entirely in avoiding contact with these unpleasant actualities. Psychiatry explains the ease with which men can eliminate unpleasant thoughts from their consciences when they will to do so. Hospitals resemble fine hotels. In many instances a period of hospitalization is regarded as an adventure. Death is surrounded by flowers. The body is removed from the hospital to the mortician's chapel. The funeral is driven rapidly and luxuriously to the cemetery. The acquaintances scarcely feel the shock, even the home may not be much upset by these events.

The woman in labor is hurried to the hospital and her trial evokes little sympathy from husband and associates. This acts to deprive the wife of the sympathy of her husband. Many husbands of this day do not appreciate what a woman's labor is. It is true that many men now feel that labor is not much. The hospital and the nurses provide a pleasant place in which the wife and babe spend a few days in considerable luxury. They even wonder what the doctor does in connection with the case.

Diphtheria and other contagious diseases are so carefully secreted by the health departments that one must go out of his way to prove that these things actually exist. We have taken several "christian scientists" to contagious hospitals and noted their horror when they appreciated that diphtheritic membranes do choke innocent babes to death. Many of these people succeed in justifying their opposition to medicine because they have no experience with disease. Experience with gangrenous appendices, ruptured ectopic pregnancies, fractured bones, edema of the glottis, ileus, epithelioma, etc., is so well avoided that they believe the reports about them are exaggerated.

This effort to minimize the seriousness and actuality of sickness and death undoubtedly hurts the medical business, and retards the public utilization of full health service. Even the govern-

mental reports of morbidity and mortality are carefully censored. It is a surprise even to physicians when they discover that a considerable number of deaths and much illness go on all about us every day without in any way making their presence felt upon our lives.

Honesty demands that too great suppression of statistics and too complete shielding against the actualities of sickness and death should be done away with.

It may be accepted as true that tolling of a church bell in connection with every funeral and a slower pace in the direction of the cemetery would benefit the church, the people and medicine.

This does not indicate any desire to return to those dark days when fear of death and dread of the mysteries incident to the older conception of illness drove people to depend upon charms, pills and powders. Physicians have been successful in developing the science of living until magic and superstition are largely displaced. However, it is well to recognize that there are several proper factors that serve to support every business. One is the desirability of possession. Surely medicine can say a great deal about the desirability of possessing good health, a happy healthy family, and a goodly number of years. Another is to gain increased comfort and pleasure. Medicine is second to no other business in the value of its service in this direction. Fear plays a very important part in the success of every business. We shun shabby clothes and patches because we fear the comments and thoughts of our associates. We sit in high priced theatre seats because we fear the sneers of mere strangers. We purchase expensive automobiles and struggle to occupy luxuriant homes. Our wives are afraid to wear a hat or cloak of last season's styles. We are afraid to eat spotted food or drink questionably pure milk. We are apt to continue a disappointing marriage because we are afraid to go through the ordeal of being divorced. Fear, then, is an important factor in every business. Why then should we not admit that fear of becoming inefficient through chronic illness, the fear of dependency and of death are properly themes for propaganda in the promotion of the medical business. Surely to eliminate fear by belittling dangers and actualities is dangerous.

Bankers are regarded as honorable men. Insurance companies are esteemed as commendable enterprises. The basis for saving upon which banking depends and the basis for insurance is largely fear. These businesses keep constantly before as many persons as they are able—fear of poverty, fear of dependency, fear that when a great need or money arises the person may die because he can not finance the treatment or replace a loss.

A need exists that each citizen be educated to budget for health. Propaganda should be maintained to show each one that health does cost money. Propaganda should be maintained to show the citizen that industry and merely living, give rise to illness, that being born may be accompanied by handicaps, that ill health means inefficiency and lowered earning power. Propaganda should be maintained to show that a parent has done a wrong unless he has so cared for his child that the child reaches his maturity possessed of good health and free from handicaps. Propaganda should be maintained that shows each citizen that a lack of success very often depends upon some medical problem.

Our food, our shelter, our protection and our pleasures are not given to us. We must work every day to secure them.

Health is dependent upon exactly the same laws. Whether it is secured via paternalistic government or by funds rich men accumulate, or from the patient's own purse, in the last analysis either the citizen pays for health, clothes, food, government, recreation, or he goes without. Some one must be paid and there is no example of government controlled business that warrants the belief that socialized medicine will be as good as private practitioners. Government railroads, police, sanitation, food, mines, insurance, newspapers and parcel delivery are not recognized as equal to privately controlled agencies. In our most advanced communities public activities are always supplemented by private enterprises for those who demand the best service.

As a group physicians have by education, both as youths, as college students and as practitioners, been swayed by a peculiar idealism, often promoted by persons outside the profession, and at other times by shrewd men within the profession, so that the great mass of the profession have blindly accepted the teaching that doctors

are to be unbusinesslike, idealistic paupers. Always, however, while the innocent lambs have been following this ridiculous idealism, the laymen and the "successful" practitioners have been teaching this brand of "idealism" by word of mouth and in the conduct of their own affairs they have practiced very efficient business systems that served to increase their own financial status.

Laymen should begin looking the fact squarely in the face. The layman's budget must include an account for "health service" just as it should include accounts for food, lodging, clothes, recreation, burial, etc. We do not propose here to outline what this should amount to. Every one realizes that he eats and dresses according to what he is willing to pay. No one can get health service second hand, at a rummage sale or cheap, via the junk dealer. If health is bargained for the buyer must realize that just as when he spends too little for food or clothes what he receives is usually inferior goods. He does not ever get a first class meal for a third class price. A cheap suit is never made of first class goods and workmanship. Surely when it comes to bargaining for health service the customer is in no position to force any of his own will upon the doctor. There is only one protection for the layman. That is the integrity, conscientiousness and honor in the heart of the physician. Every layman should search his own conduct toward physicians and decide whether this entitles him to ideal service. The past and present conduct of medical men certainly demonstrates that they can be trusted to give full value and honorable dealings. There is no room then for the political bargainer, the corporation bargainer, the insurance bargainer, who undertake to act as the go-between for the public and practitioners. When a layman is represented by one of these, in dealing with his medical attendant, surely he is not in a position to be proud of.

It is time that every one includes in his budget an account for health service, comparable with the accounts he provides for other necessities. If he chooses to eat inferior food, if he chooses to wear inferior clothes, we admit this is his privilege. We do not then propose to dictate what he must value his health service at. He should be privileged to make this account as meager as he chooses. He should, however, be told that his small allowance only secures a comparably poor health service.

When a man purchases a cheap suit, he does not reduce the dealer's profit. When he uses cheap fuel all who handle it are allowed their profit and there is no one really harmed so much as the final consumer. A community or a man that provides funds insufficient to purchase adequate health service suffers more than do the physicians. The public has "been kidded by experts." Medicine should perform a real service by spreading the truth with regard to this matter.

We must now consider the question. What about the man who finds himself in need of health service who may have been prosperous but has met adversity, or those other men who have been inadequate all their lives but who require treatment. There is a group that are so deficient that their continued existence is no comfort or pleasure to themselves. They can never be benefited by uplift movements nor rehabilitated because they are so constituted that they know nothing above the plane upon which they exist. This mass of human wreckage furnishes the means of support for a considerable number of persons who collect money and operate charities. In many instances these agencies take advantage of a contributing public. The agency very often needs this poverty stricken class to make its own living. It is time that medicine be allowed to escape the burden of carrying too large a share of this load and that intelligence be used by sociologists in caring for these people. With regard to the man who actually has met adversity, it is surprising to discover that he still has credit and we have often been amazed at the manner in which providence seems to lend a hand in rehabilitating these persons. As a matter of fact, today there is a great turning away from the paupers and down and outers by all charity and social service workers. They seem anxious to cultivate groups who heretofor have been regarded as above "charity" to the end that the field for "charity" may be broadened, and more need for more social service workers may be developed. There is definitely a movement among these people to bring more people under the control of charity.

The reason for this digression is to bring di-

rectly home the point that medicine and the giving public have not properly investigated the subject of charity. The connection with the subject of budgeting for health service, is that physicians have too often felt reluctant to charge properly, to emphasize the act that health costs money, and the public some way feels that the position here taken, that health must be paid for is sacrilegious in some little understood way. This false attitude has been built up at the expense of all of us by persons who live from the existence of charity. This is not a condemnation of charity workers as a whole. It is an expression of the belief that the time is ripe to deal with them and their work upon a sensible and efficient basis.

Social service workers, public health officers and charity workers all make their living by their work. They do not deserve the crown of martyrs sometimes bestowed upon them. They work at the business of meeting one of society's needs just as do grocers, truck drivers and others. Medicine has a right that it be dealt honestly with by these groups, instead of having each of these groups, being permitted to make its living, giving away physician's services. Intelligent care for dependents and deficients, and seeking to find suitable employment for such as can work is the great field of opportunity for these groups of charity workers and others.

Just now a great deal of harm is being done because too much propaganda is being carried on by various agencies that seek to cheapen the cost of health services. The layman is being led to believe that health may be had for nothing or very cheaply, provided he follows these leaders. Of course it is overlooked that these leaders are to be paid when they do succeed in providing health service via charity, endowed institutions, or governmental bureaus. In the end then their plan is that the citizen will have to pay for a social service and a physician, so where is the gain? Medicine must meet this propaganda and show the citizen that health service can not be had free. He should be shown that better service can be had with physicians directing health matters than by having laymen dictating to both physicians and laity.

The citizen must face the matter frankly. He will have to pay for health service whether it comes through one agency or another. Then he should plan his finances so that he provides this service for himself. This is what is meant here by "budgeting." Making a financial programme in advance that provides intelligent spending of income to meet most efficiently future needs of the individual, family or community constitutes the fundamental of "Budgeting".

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THE REACTION OF THE LAITY TO THE PROGRESS OF MEDICINE*

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As we turn the pages of medicine of the past fifty years, we, as physicians, are scarcely able to keep up, much less the laity. So tremendous has this progress been in the past twenty-five years that many of us have had to learn anew some of the things that we were taught in medical school. The medical profession swung from the no-germ theory to the germ theory, from not simply the cure of disease, but the prevention. also. In a recent book by Paul de Kruif on *Hunger Fighters,* the author portrays the struggle man has had against starvation. He tells how the wheat rust, the hog cholera, the foot and mouth disease, etc., have been combatted. As many plants and animals have been infested with pestilence, so man has had a struggle to rise against pathogenic bacteria. The more crowded civilization becomes, the more difficult the task. Man himself has had the responsibility of relieving plants and animals, and also himself from the disease organisms. It is within the past twenty-five years that he has been able to find wheat which is able to withstand the drought, and serum against many animal diseases. He has been able to find the life cycle of many worms infesting man, he has been able to conquer yellow fever, and, to a great extent, malaria and hookworm.

In the midst of our heritage of the numerous discoveries, we forget the work and the sacrifice that has been made for them. Carleton, who gave his life to the discovery of a hardy wheat that would withstand drought and rust, died broken-hearted and a pauper, though he saved our people millions of dollars. The young doctor

*Read at the meeting of Champaign County Medical Society, January 10, 1929.

who gave his life in the cause of discovering the transmission of yellow fever has scarcely been heard of. The medical profession is to be lauded for not exploiting any of its discoveries, but it is only within the last few years that the laity has had a small chance to know something of the men who have done the wonderful work.

How is the laity responding to all the wonderful medical progress—their response is much in proportion to the attitude of the medical profession and to the knowledge received from them. There is one group in the profession who believes that knowledge will help the laity to respond better, and there is another group who believes that ignorance is bliss. Today, with our multitude of avenues of transmitting knowledge, such as papers, magazines, radios, it is not the question of keeping knowledge from the laity but how can we give them the right knowledge. I believe that medicine and the medical profession will progress in proportion to the real knowledge given the laity.

Dr. Lake in an article on State and Medicine (A marriage that cannot take) in December *Medical Economics,* brings out a number of interesting points. He speaks of the recent attempt of the government to extend the Veteran's Bureau. I do not believe that any of us want to see the Federal government extend the scope of the Veteran's Bureau to include the hospitalization and surgical care of all those who have served in any war of the United States and who are now suffering from any diseased condition whatever, without regard to its having any possible connection with their military service. He says, "Our national, state and municipal public health agencies are a necessary part of civilized life, under modern conditions, and no one would belittle their value or attempt to curb their legitimate activities, even though they represent what is, strictly considered, a phase of State Medicine." Dr. Lake states further, "The government, has, however, the right to disseminate among its citizens such sound and valid general information as will place in their hands the knowledge which is necessary in order to lead a sane and healthy life." Any organization which has as its ultimate purpose the dissemination of knowledge which leads to more sane and healthy lives is an asset to the people and to the medical profession. If knowledge is withheld from the laity, can we expect them to go to a surgeon and pay much more to have an ingrown toe nail removed, instead of going to a chiropodist; or can we expect them to go to an orthopedic surgeon for an injured spine or to a general surgeon for an attack of appendicitis, rather than the chiropractor whose bold headlines tell of his wonderful cures. The more the laity knows about germ disease and preventive medicine, the less he is willing to take a chance. I saw in a Home Bureau Bulletin the other day—"Our aim is for every Home Bureau Woman to have a physical examination before 'Health Year' closes in February." This large organization of women is responding greatly to this idea which the medical profession has advanced. If this examination is given carefully, with some good advice, to the mother, as soon as little Mary gets a pain in the abdomen the mother thinks of Dr. Smith at once.

A short study of the Parent-Teachers Association will show that they are thinking a great deal in terms of health. Their Child Hygiene Plan of work for 1926-1927 gives the following outline:

1. Education of Expectant Mothers:
   - (a) Urge medical examination by family physician.
   - (b) Promotion of education on prenatal care.
   - (c) Urge persons needing prenatal advice to write for literature.
2. Infant Care:
   - (a) 100% birth registration.
   - (b) Publicity for the prevention of blindness.
   - (c) Promotion of education on the need of medical supervision in proper feeding and on general care of infants in the home.
3. Pre-school Age:
   - (a) Urge the organization of study classes in each association so that parents may be advised that the pre-school age period is one of the most important in the child's life and that their responsibilities are very great. Proper health and food habits are dependent on discipline.
   - (b) Urge physical examination of every pre-school age child in Illinois.
   - (c) Correction of all remedial defects by family physician. Some of the defects that may be found are:
     - 1—Malnutrition.
     - 2—Diseased tonsils and adenoids.
     - 3—Defective sight.
     - 4—Defective hearing.
     - 5—Defective teeth.
     - 6—Goiter.
     - 7—Flat feet.

4. Children of School Age:
   (a) Encourage all parents to have physical examinations of their children annually by family physician.
   (b) Encourage correction of defects.
   (c) Encourage care of teeth by family dentist.
   (d) Encourage physical examination of children desiring working certificate, as prescribed by the Illinois Child Labor Law.
   (e) Health education.
   (f) Nutrition—A lesson on the causes of malnutrition. Besides these, they include lessons on school sanitation and on the causes of retardation in school.

I have given this program somewhat at length to show that the laity are really planning and thinking in terms of health. It also shows that the laity is looking to the medical profession for help to carry out its program. In a report of the National Congress of Parents and Teachers for 1928, we find the following: "Through the campaign to send children physically fit to school, which is generally called the 'Summer Round-Up of Children,' education in hygiene has been actively promoted. As a result, more than 50,000 children in forty-two states have this year received pre-school examination and corrective treatment, and a great amount of directive literature has been distributed for the use of mothers." Is this not a great response of the laity to the medical profession and is it not a great opportunity for the profession to get into the lives of the parents and children?

I ran through the *Reader's Guide* for the year 1905 and the year 1925, and found only two articles on health in the laity magazines for the year 1905; the subject of one article was "Effect Upon Health of Varying Amounts of Borax." I found no article on health education. In 1925 there appeared twelve health articles in such magazines as *Woman's Home Companion, American Mercury, Saturday Evening Post, Literary Digest* and *Colliers;* there were seventeen articles on health eduction. With this increase in magazine articles on health and the large number of health talks over the radio now, the laity must think more in terms of health. Then there are health organizations that promote thinking in positive health terms with which we all are familiar. Regardless of the many good organizations which are helping the promotion of medicine, there remains with us many quacks. We shall never be able to eliminate them, but they are bound to decrease as health knowledge increases among the laity.

For safe-guarding the health of the public I believe, with Emerson, that *Light* is the best policeman.

OBSERVATIONS FROM A CHILDREN'S CARDIAC CLINIC*

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These observations were made at the Mandel Clinic of the Michael Reese Hospital, in the children's cardiac division, where, at the end of 1928, there were 221 cases being actively treated. This cardiac clinic is conducted independently of the adult group, and all children up to thirteen or fourteen are included. Occasionally one is carried to fifteen or sixteen for special reasons, since at this period it is often necessary to give advice as to occupation or further scholastic work, and the longer the patient has been observed, naturally the better is his case understood. Three physicians are in attendance each Saturday morning. In addition, a social worker is assigned to the clinic work as well as to follow the cases in the hospital, thereby attaining almost complete continuity in the follow up care. We feel that this obtaining of the fullest benefit of the social service department is very important, as the worker sees that patients leaving the hospital, both active and potential heart cases, are followed in the cardiac clinic for some time after.

Cases are referred to the cardiac group from the general pediatric clinics, or special clinics of the dispensary. For example, when a patient is recommended for an operation a heart condition is often discovered for the first time during the routine examination. Indeed, a good many children of pre-school age, with heart disease, are first brought to our attention in this way. It has taken us some time to secure the necessary cooperation of the other departments, such as the nose and throat, but in the past three or four years a few of the throat specialists have fortunately interested themselves in our work. Thus we have had some rather gratifying results. In fact, since we have been removing small remnants or tags of tonsil and adenoid tissue (which the recent work of the Doctors

*Read before Chicago Heart Association, April 1, 1929.

Dick has shown can be more harmful than the whole tonsil), and since we have been giving careful attention to the treatment of the sinuses, many cases have perceptibly improved. Indeed, some that had an elevation of temperature for two or three years, and frequent evidences of decompensation, were changed to that less formidable group of inactive infections and compensated lesions, and have become able to "carry on." In fact one of these—a boy—has become an amateur golf champion! While it is true that removing every possible focus of infection does not eliminate it, nevertheless, where properly carried out, it does reduce the number of recurrences.

Then, too, in this clinic every child has a complete blood examination and Wassermann test, a two meter heart plate, an electro-cardiogram, as well as any special laboratory work that may seem of some value to his particular case. The undernourished "heart" children are studied in, and advised by, the nutrition clinic, while certain other cases (and it is surprising to find how many children develop abnormal mental attitudes because of their cardiac condition) are sent to the mental hygiene department for psychotherapy, and are followed by both clinics.

Recently we have analyzed a typical group of cardiac cases from this children's clinic, and have gone over 110 or more records.

The rheumatic group (rheumatism, chorea, and tonsilitis) accounted for 76, or 69%. There were 13 congenital cases, or 11%. The scarlet fever history group was found in about 7%; and the balance, 13%, included those of unknown etiology. The youngest child was two years old and the oldest 16. Six children only were under six years of age. Furthermore, there were 50 boys and 60 girls in this group.

Of this group, 9 had both aortic and mitral lesions. Twelve of the 110 complained of definite cardiac pain and of the 13 congenital cases, found and diagnosed, only 2 had an appreciable amount of cyanosis and clubbing of the fingers. Two of these congenital cases developed acquired endocarditis superimposed on their old defects, as noted by a change of murmur, the presence of fever, and so forth. One congenital case, with marked cyanosis and clubbing of the fingers, died at the age of 14. However, it is well known that the majority of the congenital hearts with these findings rarely survive early adult life and although cyanosis and clubbing are quite characteristic, when present, they are not common findings to those congenital heart cases that survive early infancy. Two cases with auricular fibrillation were present in this group; one, a girl of eleven, who had been under observation for some 2½ years, and the other, a boy of 8, who has had a fibrillatory heart during the past 9 months. The etiology of both was rheumatic fever.

It was, moreover, interesting to note that in 22 of the patients there were found other cases of acquired heart disease in the same family, frequently in sisters or brothers, and sometimes in one or even both parents. This certainly suggests a possible communicability of the disease.

A gain in weight, as described by McCulloch and others, was found to be a good guide to the progress of the improvement. Indeed, those children sent to Sunset Heart Camp seemed to build up a resistance which helped to carry them successfully through the months that followed. The absence of temperature elevation, as well as the degree of cardiac enlargement, were other important factors in determining the degree of improvement.

The pulse rate, the response to exercise, and the checking up by the physician of the amount of play or work the patient was able to perform, proved satisfactory guides as to the safe amount of activity permitted the patients.

During 1928, it was found necessary to send only 9 children of the 221 to the hospital, but the number confined at home was not ascertained. However, it was seldom found necessary to give digitalis to ambulatory cardiac cases. Either the patients responded to rest in bed at home or were so sick that they were of necessity cared for in the hospital. We observed that those cases with rheumatic nodes ran a more severe course than any others. The nodes appeared to be most numerous and were found earliest on the occiput, and later on the elbows, the knees and the extensor tendons of the hands and feet. I might mention, in passing, that some of the prodromal signs of the rheumatic infection in children are often pallor, loss of weight, fatigue out of all proportion to the effort or play, and a slight daily rise of temperature accompanied by an increased pulse rate.

It seems to me that a very important and somewhat neglected group to examine for cardiac disease is that of the pre-school child, or nursery

school class. At this age children are probably less cooperative; they cry during the examination, thus making a careful examination more difficult, but none the less important; and they receive no regular outside examination as does the school child. All children should be carefully examined at birth for congenital defects and it should be noted that this usually requires several examinations for sure results. Furthermore, there should be more regular follow up examinations, one, two or three weeks after all cases of tonsillitis, scarlet fever, diphtheria, and those other infectious diseases which often affect the heart. If this were done, cardiac disease could be discovered early, and proper treatment could be instituted at once. Also, a longer convalescence after acute infectious diseases, and tonsillitis, is offered as a possible means of reducing cardiac complications. It might be well to emphasize that the conception of rheumatism as essentially a joint disease is principally due to its manifestations in adult life. The more correct conception of rheumatism as a *general disease* of infective origin is based on its clinical characteristics in childhood. It is true of course that one must keep in mind that a child may be very ill from rheumatism although he has never had a pain in his joints.

In conclusion, I should like to emphasize again the necessity of repeated early examinations of children from birth, and after all acute infections. The advisability of prolonged rest and convalescence for any cardiac involvement, followed by graduated exercises before returning to the usual activity. And the early and complete removal of all diseased tonsils and adenoids with the proper and adequate treatment of all other foci of infection, in children showing any cardiac involvement. It is through these simple precautions that we shall realize our best work, and prove that "prevention is better than cure."

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DIARRHEAS OF INFANCY*

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For my own convenience, I classify the diarrheas of infancy as follows:

I. Infectious diarrheas:
   (a) Dysentery (bacillary).
   (b) Gas bacillus.
   (c) Amebic dysentery.

II. Diarrheas due to food:
   (a) Improper milk mixtures, overfeeding, underfeeding, and the various causes described by Finkelstein.
   (b) Spoiled food, especially in older children.

III. Parenteral infections:
   (a) Coryza.
   (b) Otitis.
   (c) Bronchitis.
   (d) Cystitis, and so forth.

IV. Miscellaneous diarrheas, such as
   (a) Those in the newborn.
   (b) Those due to heat.
   (c) Those of environment—nervous tension in the home, change of nurses, etc.

The infectious diarrheas used to play a prominent part in the above classification, but in recent years they are assuming an ever decreasing importance. For a long while there was a great dispute between the Boston school and those of us in Chicago who followed the teachings of Finkelstein, as to whether the diarrheas were due to specific infection or to nutritional disturbance. I think the question was solved for us in Chicago by a study made in connection with Professor A. A. Day.[1] Day, working with Kendall in Boston, had shown that many cases of diarrhea were due to the dysentery bacillus. Using the same technique with our material in Chicago, he was unable to find infectious organisms as a specific cause. At that time we advanced a theory that the difference between the two sets of findings was due to the fact that in the east raw milk was used, and in Europe and in the middle west of the United States milk was boiled. Boiling the milk rules out all intestinal infections except those due to spores. This is probably also the reason why intestinal tuberculosis is reported so frequently in those neighborhoods where raw milk is used, while tuberculosis of infants seems to be of the pulmonary type wherever the milk is boiled. At any rate the number of infectious diarrhea cases is very few.

Should one meet with a case of diarrhea showing blood and. above all things pus in the stools, particularly if the infant has been fed raw milk, one should get a stool culture. If dysentery is

*Read at the Kankakee County Medical Society, February, 1929.

**Department of Pediatrics, Northwestern University Medical School and Michael Reese Hospital.

1. Day, Alexander A. and Gerstley, Jesse R.: Am. Jour. of Dis. of Child., 1915, 9, 233.

found, two dietetic treatments are available. Kendall has shown that the dysentery organism does not produce toxin if grown on carbohydrate medium. He therefore recommends a diet high in lactose. I think that most clinicians are agreed that the diet is not as important as formerly considered. The essential seems to be to give the patient sufficient food. Much of the mortality of a decade ago was due to starvation, with the idea of improving the nature of the stools. Now we realize the danger of hunger and offer our little patients small quantities of food at frequent intervals. Recently a German investigator has advised the use of cream in reasonable quantities and thinks the high fat has a favorable effect upon the course of the disease.

The success of dysentery antitoxin is still questionable.

For gas bacillus infections, buttermilk is the ideal diet. The gas bacillus thrives on carbohydrate. It cannot tolerate high protein or lactic acid. Buttermilk or lactic acid milk without carbohydrate meets all these requirements of therapy.

Amebic dysentery is exceedingly rare in young children. I include it in the above outline because Geiger recently showed that this disease is more common in Chicago than was formerly thought. Perhaps we should be more on the alert, in children who come to us from out of town.

The diarrheas due to nutritional disease as described by Finkelstein are infinitely the most common and are those in which I have been particularly interested. Finkelstein and his school developed the idea that carbohydrate when introduced into the baby's intestine was attacked by the bacteria normally present in the intestine and fermented into the so-called lower volatile fatty acids (formic, acetic, etc.). These acids in turn irritate the intestine and cause diarrhea. The objection to this theory is that breast milk with its 7% carbohydrate (cow's milk has only 4%) produces acid stools but is an ideal food. The success of albumin milk on the other hand, with its high protein and low carbohydrate, is an argument in favor of the theory of Finkelstein and Meyer. They try to reconcile the conflicting evidence by suggesting that carbohydrate ferments in the intestine in a different way when given in breast milk or cow's milk. We shall return to this later.

Following these pioneer studies, Finkelstein and Meyer noted that when children get mild infections such as coughs, colds, otitis, etc. (parenteral infections) they develop disturbances in nutrition and diarrheas. Further clinical observation showed that diarrheas from this source were very much more frequent than those due to high carbohydrate mixtures. As the stools in these cases were acid just as the stools in the high carbohydrate diarrheas, they concluded that the parenteral infection was an important factor in augmenting intestinal fermentation.

To study these points more carefully we decided on the following experiments:

1. To see if there was any difference in the acids excreted in the stools of babies fed on breast milk and on modified cow's milk.

2. To try the addition of carbohydrate to each of these mixtures and see if there was a real difference in the types of acid excreted.

We have been at this work for over four years and our results have been reported in detail elsewhere.[2]

The results of these studies were exceedingly interesting and surprising to us. In the first series of experiments we found that there was some difference in the acids excreted on breast milk and on diluted cow's milk with 5% carbohydrate. Formic acid is in excess in breast milk and acetic acid in the cow's milk stool. Another acid. propionic, was found invariably in the artificially fed, never in the breast fed. We were also interested in noting that the stool of the cow's milk baby was much heavier than that of the breast fed. The most interesting part of the work was the second series of experiments in which we added carbohydrate to both diets. High carbohydrate added to breast milk caused very little change. There was little increase in the amount of acid or the weight of the stools. To our amazement the addition of 12% carbohydrate to the diluted cow's milk caused far less change than we expected. There was some increase in the frequency and in the weight of the stools as well as in the acid, but nothing in either clinical or chemical evidence to approximate the conditions found in the severe diarrheas which we treat clinically.

The most important of our observations was

2. Gerstley, Jesse; Wang, Chi Che; Boyden, Ruth E.; Wood, Agnes A.: Am. Jour. Dis. Child., 1928, 35, 580 and also Am. Jour. Dis. Child., 1928, 36, 289.

that in a child being fed two-thirds cow's milk with 6% carbohydrate (a common formula). During an attack of bronchitis he developed a severe diarrhea and excreted acid in three times as great amounts as the children fed on much higher quantities of carbohydrate. Following his recovery, the carbohydrate in his diet was considerably increased, but still the acid output was nowhere nearly as great as during the time of the bronchitis, when he was on a much lower sugar diet.

These studies are very significant. They suggest that the role of carbohydrate in causing diarrhea has been considerably overdrawn. Unquestionably parenteral infection in some mysterious way influences the fermentation of sugar in the intestine far more than the actual quantity of sugar in the diet. We are still working on this problem and hope to have more to report later.

In the group which I have called miscellaneous, there are types of diarrhea which have not been sufficiently studied. A decade ago, diarrhea of the new-born was relatively common and often fatal. Just as in the case of bacillary dysentery, we now think that many of these diarrheas and deaths were due to insufficient food. The treatment consisted of starvation. We find that a great number of these children will get well if the diet is increased rather than decreased.

There is a large group of diarrheas due to environmental influences. What the factor is, we do not know, but in some way it is probably related to the baby's nervous system. Children in a household of great nervous tension are particularly subject to gastro-intestinal upsets. While this occurs most frequently as vomiting, diarrhea is not an uncommon occurrence. In the same way it has been noticed that a baby who has been in the care of a certain nurse for considerable time, will be inclined to react with a mild temporary diarrhea if there is a change of nurses. One of the most striking examples of this was during the course of our experiments. In order to separate the stools from the urine, we placed the baby upon a metabolism bed. Invariably, although the child was comfortable and contented, he showed an increased frequency of stools. This diarrhea invalidated many of our experiments and it was only by giving these children a course of training, placing them on the bed one hour one day, two hours the next, and so on, that we were able to have conditions feasible for our experiment.

These diarrheas due to environmental influences are, I suspect, much more frequent than we have previously thought. I am laying some emphasis upon them to show that there is a large group of diarrheal cases which occurs absolutely independent of food and infection, and requires absolutely no adjustment of diet.

This has been my own working outline of the causes of diarrheas in infancy, and I have found it of considerable service.

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THE CONTRIBUTION OF STUDENT HEALTH SERVICE TO THE PROGRESS OF MODERN MEDICINE*

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The progress of modern medicine is determined by three factors: a sufficient number of well trained physicians, fruitful research and a public which appreciates the possibilities of medicine to serve it. The greatest of these three is an intelligent public sympathetic with the medical profession and ready to give public health administration the necessary moral and financial support to make it commensurate with scientific knowledge.

Medical Training.—There are approximately 149,521 doctors in Continental United States, which is one physician to every seven hundred ninety-three persons in the population. The total deaths in the profession during 1927 was 2,790. The number of graduates of medical schools for the year ending June 30, 1928, were 4,262, which, without allowing for the failure of the two periods to coincide, is a net gain of 1,472 doctors for the year.

In spite of the requirement of high school graduation, two years' college education, four years' professional training and a year's internship to be eligible to practice, the number of students entering medical schools since 1919 have shown an annual increase of about 1000 per annum. As only 17% of those matriculating fail to graduate, the steady increase in the number receiving the M. D. degree, not only in-

*Read at meeting of Champaign County Medical Society, January 10, 1929.

sures a replacement of the physicians who die or become inactive but it provides for the annual increase in the population.

There is no shortage in physicians for the country as a whole but there are certain irregularities in their distribution that are due to the social, economic, educational, and professional advantages associated with density of population, rapid transportation, and with the need of hospital and laboratory facilities in the practice of modern medicine. Happily, the rapid increase in the mileage of hard roads is making the town and country mutually more accessible and will go a long way towards relieving certain rural sections of the disadvantages of this unequal distribution of physicians.

These considerations are presented only to set forth in bold relief the fact that whatever its handicaps, modern medicine is not likely to be materially retarded in its progress by the lack of a sufficient number of highly trained doctors to give it momentum.

Productive Research. Surely, it is neither necessary to cite the epochal contributions to medicine during the last fifty years to prove medical progress has not been seriously impeded by the want of discovery during the last five decades, nor is there need to observe that medical knowledge increased more in the period from Pasteur to Banting than from the beginning of the practice of medicine by ancient priests to 1870.

Research has been overwhelmingly prolific and its results revolutionary. The profession has been swamped with facts and technique until in self-defense its members have been compelled to limit their activities to escape superficiality and to make it possible to exploit adequately a particular field.

In brief, this is the story of the creation of the hundred and one specialties of medicine. Likewise, it is the history of productive investigation at the bedside, in the clinic, in the laboratory and by the great institutes of research. Even today one discovery follows another with such rapidity that there appears to be no decrease in the fertility of research. There is no indication that medical progress will halt because of the failure of scientific investigation to mine new facts.

The Public's Perplexities. If the profession has had to narrow its front to increase its depth, what must be the perplexities of the average layman when he contemplates medicine in its relation to himself, his family, and his community? If it is true, the public's knowledge of medicine is on the average two generations behind the profession, what must be its medical conceptions when medicine has acquired more facts in the last five decades than in the previous five thousand years?

In the disparity between scientific knowledge and public information is found the explanation of a graduate of two universities putting a fly blister on his elbow to keep influenza out of his mouth and of the action of the painter with a fourth grade education on a city council defeating a model milk ordinance endorsed by the local medical profession, the Surgeons-General of the Army and United States Public Health Service and by the director of the state department of health. It also explains the reason for an outstanding financier glazing his home with costly, special glass to protect his children against rickets when two minutes out of doors would be worth fifteen hours inside the house fifteen feet from the window.

Should surprise be registered when individuals otherwise known for their excellent judgment are found worshipping at the shrines of pseudoscience and unscientific medicine? Glance at the current periodicals and behold the virtues of glorified antiseptics, the miracles wrought by yeast, the wonders accomplished by artificial light, the preposterous claims of the latest proprietary, food or fad and by no means least the sylph-like beauty to be derived by maidens reaching for a cigarette instead of a sweet.

In such advertisements, the truth has been twisted cleverly to trap both the ignorant and the gullible. Such health appeals block the progress of medicine by filling the laymen's mind with medical "bunk" and scientific "hooey," to his own detriment and rob the well trained physicians of an opportunity to render a real service. Neither medical training nor research can meet such a situation, education alone is the solution. Knowledge is the only means of salvaging the public.

The Rising Tide of Quackery. The public is becoming more and more enmeshed by cults, "isms," "pathies," and therapies. If such a statement creates skepticism, it may be immediately dispelled by recalling that in the year 1929

voodooism is so powerful in one of the most prosperous counties of one of the oldest and most enlightened states of the Union, that when murder is committed by its exponents to get a lock of hair to bury eight feet underground to break a "spell," judicial and municipal officials join forces to protect local business interests by restricting publicity concerning belief in the scorcerer's art.

Quackery has never been so high-powered, more able to deceive the average individual, more costly than today. The great developments of science in the last few decades afford it so many chances for new disguise in apparatus, method and formula that it has not only become a menace to health and the progress of medicine, but it takes millions of dollars annually from those least able to part with their money.

Though the truth is said always to triumph, the odds favor quackery. While a scientific fact is singular, fraud built about it may be multiple. It is easier to educate to buy than to teach to understand. Besides mankind in general seems more resistant to truth than humbuggery.

As medicine becomes more technical by the greater application of biology, physics, and chemistry to diagnose, control and treat disease only the searching rays of knowledge can save the public from the pseudo-science of the mountebank. Education alone can set before the average citizen in true contrast the aims of scientific medicine and those of the ignorant and parasitic who deliberately block its progress.

The Magnitude of the Task of Medicine. The mission of medicine is not only the alleviation of human suffering but it has the more sacred duty of promoting a national vitality and intelligence which shall make our beloved nation immune to the forces of degeneracy and retrogression that laid waste the empires of the past. As Laycock has pointed out, man as compared with other animals is peculiarly predisposed to degeneration of the nervous system; and civilized man more so than his uncivilized brother. For this reason and for the fact that nations with painful regularity have risen only to decay, certain observers have seen in civilization the symptoms of disease whose end is national dissolution. If such views are correct, modern medicine has a challenge which will tax its every resource.

There are no more undiscovered continents in which civilization may be revitalized by pioneers developing a new life in a new world. The rejuvenation of nations by incursions of a more vigorous primitive people becomes unlikely with the greater development of communication, the intermixture of customs and world-wide recognition of national boundaries. As the center of population moves farther and farther into the city and rapid transportation makes the rural sections increasingly the suburbs of a metropolis, the countryside correspondingly loses its value as a producer of a bold peasantry able to give renewed vigor, "Where wealth accumulates and men decay."

National vigor must depend more and more upon the taking of thought. Man faces the issues squarely of whether or not he is capable of employing scientific knowledge in time and thoroughly enough to produce racial betterment, to insure each of his fellows sanitary living conditions and to obtain the health which qualifies him to live most and serve best.

While research has thrust upon two generations a mass of facts concerning heredity, the processes and development of life, the interrelationships of species and the possibility of advancing human welfare, greater than man has known since Adam left Eden, parallel development in the mechanical arts, in the use of electrical energy, in the application of chemistry and in transportation make this extraordinary advancement only relative rather than phenomenal.

Two health problems have been produced for each one that industrialism and engineering have furnished the means of solving. Needs arise and opportunity knocks but generations pass before the one is meet and the other heard. If to this situation is added the usual long latent period between the acquisition of knowledge and its general use by the public it is clear, modern medicine faces a gigantic task in making its performance commensurate with its possibility.

The Trend of the Health Movement. From isolation practiced by the ancient Hebrews and later legalized as quarantine by the Venetians, preventive medicine entered an era of sanitation. From an epoch of "clean-up," it has become intimately personal. Therefore, its future depends upon the success of making every intelligent citizen, an active public health worker; otherwise, majority action to obtain individual benefit is impossible.

Today, the periodic physical examination and health education are declared to be the only means by which modern medicine can further increase the average expectancy of life, promote physical efficiency, and insure national vitality. If such are to be the weapons of the profession in a new day to meet new conditions, is there an agency anywhere in a more strategic position to serve the public and to advance the progress of medicine, than a student health service in an institution of higher learning? In their ability to serve society, is the secret of the phenomenal development of these departments in universities, colleges and normal schools.

Student Health Services. A student health service is a health center within an institution of higher learning. It is dedicated to the conception that constructive dynamic living in the best environment that modern science can provide is the rightful inheritance of every individual. To attain this ideal, it teaches the student the principles of hygiene and sanitation as they relate to him, to his home, to his vocation and to his community. Its methods are classroom instruction, the periodic physical examination, the personal conference, demonstration of disease control and the maintenance of sanitary surroundings. It strives to reveal to the leader of tomorrow the benefits to be derived from hospitalization, public health and modern medicine because such knowledge will mean much to him, to his family, to his community, to diagnosis, to treatment, to the equipment and maintenance of hospitals, and to national vigor.

It is not the purpose of health services to pauperize nor paternalize students nor to socialize medicine but they do covet opportunities to do their part in putting the college graduate and the physician shoulder to shoulder to mutual advantage in serving the public, in advancing modern medicine and in making a better world.

LACTIC ACID MILK IN INFANT FEEDING—REPORT OF FOLLOW-UP STUDY OF TWO HUNDRED AND FORTY CASES

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This report is based on a study of 240 cases of marasmic or atrophic children, below weight infants, babies that did not do well on ordinary milk mixtures, and cases showing insufficient development as where weight became stationary after fluctuations or where there was a pronounced decrease in weight.

It is respectfully submitted with the single hope that it may prove of real service and help in feeding certain babies.

The relative indigestibility of cow's milk is largely due to the presence of a "buffer substance" capable of neutralizing the gastric juice, and intestinal secretions. By neutralizing cow's milk with some form of acid the influence of these "buffer substances" are eliminated. The content of inorganic mineral salts in cow's milk is three and one-half times as great as in breast milk. In young infants gastric digestion is at a minimum and acid secretion is limited. We also know that the acidity of the gastric contents of infants suffering from nutritional disturbances is much lower than that of normal infants. It can readily be seen that reduction of the already lowered free acidity by the "buffer substances" of cow's milk will surely interfere with gastric digestion in infants. The addition of lactic acid to cow's milk minimizes the buffer action of the milk, so that the hydrochloric acid present in the stomach is left free to exert its influence toward gastric digestion.

Doctor McKim Marriott, who has discussed the subject of lactic acid milk feeding concisely and well, in Diseases of Children, American Journal, Dec., 1923, Vol. 26, Page 542, describes the buffer action as follows: "The property of binding large amounts of acid and converting hydrogen into a non-ionized form, thus to all intents and purposes neutralizing the acid."

The question presenting itself to the average practitioner, is this: Can this principle be practically applied in every-day infant feeding?

Dr. Julius Hess has said: Every formula with which feeding is begun should be looked on as experimental, and the reaction of the infant to this particular feeding should be carefully studied.

The point to be aimed at is the provision of proper nourishment for the infant, both in quality and quantity. In most cases of failure in feeding the fault lies in the kind, rather than in the amount of the feeding.

When pasteurized cow's milk is acidified by the addition of lactic acid, the milk becomes approximately as digestible as breast milk, and

can be fed safely without dilution even to young infants, to stomach capacity. During the past four years I have been using lactic acid milk in the above-named infants and have had the most gratifying results. Babies who at three months weighed only eight pounds gained as high as eleven, and sometimes sixteen ounces a week. The mothers, after making the rounds of a number of physicians' offices, were surprised at the large gains.

Lactic acid milk is a reliable tool for the physician in the feeding of infants. Many infants will thrive on lactic acid milk when other foods fail to produce the required gain in weight. Lactic acid milk would quickly come into general use if a number of physicians did not consider it difficult to prepare at home. The average mother will readily prepare this milk if she is given the proper directions. Of course powdered lactic acid milk is now available. It is uniform in composition and acidity. Fresh feedings can be made up each time baby is fed, and the preparation is comparatively simple.

In preparing the lactic acid milk one quart of milk is boiled for five minutes and then thoroughly cooled; the scum is removed, and one drachm of lactic acid U. S. P. (75 to 85%) is added drop by drop, while the milk is stirred. It is important that the milk should be thoroughly cold before the acid is added. After the milk is acidified, two ounces by volume of Karo syrup is stirred in, and the feeding bottles for the day are filled. The infant is offered as much as he desires at four-hour intervals. There is little or no danger of overfeeding on this type of formula. The bottles should be kept in a cool place but on account of its high acid content the milk keeps perfectly for one or two days, even at ordinary temperature, and is ready for feeding. The bottle is then shaken, warmed to body temperature and is ready for feeding. When using Karo syrup it is best to get the white crystal or red label syrup. This form of sugar contains a high proportion of difficulty fermentable dextrins, and, therefore, is the most difficult of the sugars to ferment, and less likely to cause diarrhea.

Generally one to one and one-half ounces of lactic acid milk per pound of baby's weight will meet the requirements of the average baby. It should be remembered that lactc acid milk sometimes causes vomiting at first, and therefore the mother should be warned. As this food is practically whole milk it is not necessary to give more than five feedings a day after the first month; many infants will gain on four feedings a day and will not wake up during the night. The same formula can be used throughout the first year with the exception that the sugar is decreased as cereals are added to the diet during the latter part of the first year. All infants should have orange juice and cod liver oil.

A few clinical reports follow:

Case 1. A child three months old, eight pounds in weight, with the characteristic symptoms of marasmus. Originally, a breast fed baby, on a formula of twenty ounces of milk, ten ounces of water and six teaspoonsful of sugar. I put the baby on lactic acid milk. Within three weeks the child gained thirty-two ounces and assumed the appearance of a normal child.

Case 2. A baby five months old, 13 pounds in weight, who had been under-developed, and whose glands were enlarged. I decided to try lactic acid milk. At the end of the seventh month the enlargement of the glands had entirely disappeared. Baby weighed 16½ pounds and had the appearance of any normal child of 7 months.

Lactic acid milk produces quicker gains in weight than other foods. It is less irritating to the baby's delicate gastric mucosa, and therefore can be given in amounts to make a satisfactory gain in weight. Lactic acid milk is coming more and more into use in the feeding of infants with nutritional disturbances, and just as one would be regarded as a poor doctor who refused to employ the stethoscope or take the pulse, one must likewise be considered careless or indifferent, who at this day refuses to accept the newer methods of infant feeding.

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CARCINOMA OF THE DUODENUM, REPORT OF CASE*

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Carman,[1] discussing the causes of duodenal deformity says, "Cancer of the duodenum is so rare that it should be thought of last of all."

*Read before the Section on Radiology, Illinois State Medical Society, Peoria, May 23, 1929.

He reported five cases in four thousand operative cases of duodenal ulcer.

In the Oxford System of Medicine, 1927, we find the following: "Since carcinoma was said to be non-existent in the duodenum, the few cases actually observed have excited particular attention. Doubtless inflammatory growths are mistaken for carcinoma."

McGuire and Cornish[2] in 1920 estimate, from a collection of hospital reports of the world, that there is about one duodenal carcinoma to three thousand autopsies.

Geiser,[3] reviewing the German literature, found seventy cases of duodenal carcinoma reported.

Eusterman, Berkman and Swan[4] in 1925 report fifteen cases which had been studied at the Mayo Clinic.

The above references show that duodenal carcinoma, while rare, probably exists more frequently than has been heretofore supposed, and since this is true, we should keep it in mind, as I believe we miss the diagnosis simply because we are not looking for it. With the idea that every case reported will perhaps stimulate others to look for it, I wish to report the following case, first, confessing that I missed the diagnosis.

The patient whose case I wish to report was a physician, male, aged 64 years. He was admitted to the Decatur and Macon County Hospital, August 14, 1927. He had fainted while in the bath room of his home, and since he had been treated for duodenal ulcer, his son who is a physician, thought he probably had a hemorrhage and sent him into the hospital.

He had first noticed his trouble about five years ago, when he had also fainted while in the bath room. He soon recovered and paid no attention to the attack, athough he remembered that the stool had been dark colored.

Three years ago he had another fainting attack, and this time went to Chicago for an examination. The physician at that time told him he had a duodenal ulcer and advised him not to have an operation. He was put on a diet and did very well until the attack which brought him to the hospital.

At this time he was jaundiced and had been for three months. He complained of weakness, dizziness and severe itching. The jaundice began in May and had gradually increased. He thought his weakness was due to bleeding of the duodenal ulcer.

Physical examination shows the sclera to have a yellowish tinge, lungs negative, heart slightly enlarged with a definite systolic murmur transmitted to the axilla. Abdomen shows slight tenderness in the upper right quadrant. No tumor mass felt. No glandular enlargement.

August 15. Temperature 102; pulse 100; blood count—Erythrocytes 3,570,000; leucocytes 11,800; hemoglobin 50. Urinalysis negative. Examination of the stomach content shows total acidity 50; free hydrochloric acid 21; blood present. Feces examination shows occult blood, although the stool is clay colored.

August 22. Blood count—Erythrocytes 2,790,000; leucocytes 11,200; hemoglobin 40.

August 27 to Sept. 2 he was given transfusions; 500 cc of blood being given each time.

September 23. Blood count—Erythrocytes 4,200,000; hemoglobin 65.

On August 23 we had done an x-ray examination of the gastro-intestinal tract, and reported as follows: Duodenal cap shows a constant deformity in both the fluoroscopic and radiographic examinations.. The second and third portions are always well filled, slightly displaced to the right, and shows a slight narrowing in the lower part of the second portion. Barium enema shows a normal colon. The gall-bladder is partially filled after administration of tetra-iodophenolphthalein, and was even in density.

The x-ray diagnosis of duodenal ulcer, cholecystitis and cyst of the head of the pancreas was made.

September 9 an exploratory operation was done and a mass as large as a baseball was found in the head of the pancreas. There were a few nodules on the liver, old scar in the first portion of the duodenum, gall-bladder large.

The patient gradually grew weaker and died September 30.

A postmortem was done and the pathologist reported as follows: Stomach negative.

Duodenum shows a ragged ulcer about two cm in diameter, three inches from the pylorus. It is very red and seems to have small ruptured blood vessels on the surface. The second and third portions are thickened. Microscopical examination shows columnar, glandular epithelial cells arranged in dense irregular shaped alveoli.

The liver has a few light areas on the surface, which on section show spindle cells arranged in alveolar formation.

The pancreas has a large tumor mass in the head, which on section shows columnar cells arranged in alveolar formation. These appear like the cells seen in the duodenum.

Pathological diagnosis: Adenocarcinoma of the duodenum with metastases into the liver and pancreas.

According to Ewing[5] there are three distinct forms of carcinoma of the duodenum. 1. Carcinoma following ulcer. 2. Carcinoma of the papilla of Vater. 3. Carcinoma of the third portion.

Carcinoma following ulcer has been reported in 10 cases. In these the gross anatomy and

symptoms are similar to those of pyloric carcinoma, and in one of the cases reported by Eusterman, Berkman and Swan this diagnosis had been made. Stenosis and adhesions are usually present and metastases are frequent and wide spread. Coupland[6] reports a case where there were metastatic areas of carcinoma in the bile ducts. In the series reported by Dewis and Morse[7] there was metastasis in three of the twelve cases. Invasion of the pancreas is more common and may be extensive.

Carcinoma of the second portion usually arises about the papilla of Vater. Jaundice is therefore an early symptom. Dilatation of the biliary and pancreatic ducts commonly occurs. The structure is usually that of a cylindrical cell adenocarcinoma. derived from the intestinal mucosa.

Carcinoma of the third portion is more rare. Most of these take the form of a broad, flat ulceration with stenosis. Fenwick reports a case of this type where the ulcer extended over 8 inches of the mucosa. When there is a stenosis there is a dilatation of the stomach and duodenum and gastric symptoms predominate. In these cases there is usually bile in the stomach content. Icterus is absent. It is of interest to note that in four of the cases in the series reported by Eusterman, Berkman and Swan, the diagnosis of large gastric residue, gaping pylorus and distended duodenum was made.

The clinical symptoms will depend on the location of the growth. Thus, with carcinoma of the first portion symptoms similar to carcinoma of the pylorus are common.

If the involvement is in the second portion, we are more apt to get signs of an obstructive form of jaundice, and the picture can hardly be distinguished from carcinoma of the pancreas.

With the involvement of the third portion the symptoms are common to malignant pyloric obstruction, except that there is no palpable mass and the vomitus is more profuse and contains bile.

The onset is usually fairly abrupt and pain as a rule is not severe. In a majority of cases, the pain, when it does occur, appears in from one to four hours after meals. Pain was not a marked symptom in our case. Flatulency, retention type of vomiting, dehydration and toxemia are common symptoms. Jaundice is rare except in cases where the second portion is involved.

Low free hydrochoric acid seems to be a frequent finding and is mentioned by Ewald[8] as occurring in his case where the carcinoma was 2 cm below the pylorus. Eusterman, Berkman and Swan found absence of hydrochloric acid in six of their cases, and a low acidity in the others. Dewis and Morse stress this point in reporting their cases, especially as a differential diagnostic aid. They say, "We have never seen a simple duodenal ulcer co-existent with continuous absence of free hydrochoric acid, but this is the rule with duodenal cancer.

The x-ray findings are indefinite. In the series reported by Eusterman, Berkman and Swan a diagnosis of duodenal ulcer was made in one case; lesion at the outlet of the stomach with retention, one case; large gastric residue, gaping pylorus, distended cap, four cases, operative gastric cancer, one case, and negative, two cases.

The average duration of life is about seven months, the extremes ranging from three to eighteen months.

A most complete and excellent article was written by Dewis and Morse reporting a case of their own and eleven other proven cases, with a complete summary of the literature to date. I am quoting rather fully from their conclusions.

1. Duodenal carcinoma usually occurs in the sixth decade of life, the youngest patient recorded as having had the disease was 23.

2. Little evidence is ever found that they ever arise in pre-existing benign duodenal ulcers.

3. Obstructive symptoms of duodenal carcinoma are more rapid in onset than those of pyloric carcinoma.

4. Primary carcinoma of the duodenum usually obstructs the bowel; primary carcinoma of the papilla of Vater seldom obstructs it.

5. Abrupt appearance of gastric stasis in a patient past middle life suggests cancer of the duodenum. The absence of free hydrochoric acid in the stomach confirms the diagnosis.

6. Bile will be found in the gastric content when the obstruction is below the ampulla of Vater.

7. Perforation of the bowel at the site of carcinoma may be the first symptom observed.

An apparent example is the first case ever recorded—Hamberger's case in 1746.

8. Blood is present in the stools except in the rare cases of scirrhous carcinoma.

9. Perforation of a duodenal ulcer, occurring in the absence of chronic symptoms of indigestion, is suggestive of cancer, especially if the patient is over 60 years of age.

The following conditions should be kept in mind in making the differential diagnosis, as their findings are in some respects so similar to duodenal carcinoma.

1. Pyloric stenosis due to carcinoma.
2. Obstruction as result of pressure of other malignant processes, such as carcinoma of the head of the pancreas.
3. Carcinoma of the gall-bladder.
4. Adhesions causing obstruction.
5. Benign tumors.
6. Membranous stenosis.
7. Arteriomesenteric occlusion.

Now it may be that, due to the varied pathology of carcinoma of the duodenum, x-ray diagnosis can never be made with any degree of certainty. In reviewing the literature one is surprised at the diagnoses given by the roentgenologists. So far as I have been able to ascertain, there is no x-ray sign which could be considered as being diagnostic for carcinoma of the duodenum. In my own case I feel this is true, especially since the patient had a duodenal ulcer which would undoubtedly give some x-ray evidence. This ulcer was probably active, and so far as the pathologist could determine had no connection with the carcinoma.

It would seem that the obstructive type would give the most constant findings, and if taken in connection with the history and physical condition of the patient might warrant a diagnosis of carcinoma. It will be in the carcinoma of the first portion and the papilla of Vater that the x-ray diagnosis will meet with the most difficulties, as in the first the signs will resemble carcinoma of the pylorus and in the other there may be no x-ray evidence of pathology in the duodenum at all.

My object in presenting this case is to encourage a closer study of duodenal carcinoma, especially from the x-ray standpoint. I offer no excuse for missing the diagnosis of my case except that I did not give carcinoma the consideration it deserves. I believe it is only by being constantly on the alert that we can hope to improve our percentage of correct diagnosis in these cases.

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THE NATURAL DEFENSIVE POWER OF THE BODY AGAINST DISEASE*

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The body possesses a natural defensive mechanism against disease. This is well known to every one. We speak or write of a natural resistance or an increase in our resistance to disease. Conversely special susceptibility to disease is a common term in medical and lay literature. If we ask ourselves just what is meant by natural resistance or increased susceptibility, the answer is vague and will differ with various individuals. Our commonly accepted idea of a pathogenic or disease-producing bacteria is one that can invade the body and maintain itself after invasion. This involves a two-sided reaction—microbic organism and the human host. In the practical aspects of the control of communicable diseases we use two fundamental methods; first, the restriction of the distribution of disease-producing bacteria; second, we attempt to increase the resistance of the host against these bacteria. It can readily be seen that isolation, quarantine, concurrent disinfection, purification of water supply, proper sewage disposal, clean milk and food, etc., all come under the first factor, namely, diminishing the distribution of the pathogenic microbe. Active

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immunization has been our best tool to increase the resistance of the host to disease. In emergencies, passive immunization has been of aid in diphtheria and tetanus.

We wish to deal with natural resistance to disease in this paper. The whole body is enclosed in a continuous covering layer. The morphological structure of this layer may differ upon certain body surfaces; such as skin, nasal mucous membrane, oral mucosa, epithelial lining the trachea, bronchii and alveoli of the lungs, mucous membrane of the stomach, intestine, and the various other body coverings.

It is difficult to find any body covering to be free of all viable bacteria. There are some living bacteria upon our body surfaces. These bacteria form definite communities of microbic life and live in perfect harmony with the adjacent epithelial layer. We speak of these communities as the endogenous bacterial flora of that particular zone of the body surface. The large intestine has a rich and varied bacterial flora upon its covering epithelium.

We began our studies by examining the bactericidal power of the various levels of the alimentary tube. The gastric contents is bactericidal by virtue of its acidity. We have not found any other factor than the acid to be involved in the bacterial killing power of the stomach. It is some minutes to even an hour or more after food is ingested before the acid concentration is enough to be of bactericidal significance. During this period of time the stomach empties part of its contents into the duodenum. This material contains viable bacteria. These bacteria are destroyed in the small intestine. When bacteria are placed directly in the small intestine they are rapidly destroyed. This self-disinfecting power that the small intestine exercises over the bacterial life within its lumen has been studied in our laboratory for the past five years. So long as ingested bacteria are destroyed inside the lumen of the upper half of the alimentary tract, it is a natural protection against disease produced by these bacteria. The contents of the digestive tube is outside of the body, hence any sterilizing action would be similar to a destruction of the bacteria outside of the body.

We have determined that this self-disinfecting power of the upper half of the small intestine upon its contents can be changed by certain conditions. Among the various factors investigated, climatic changes seem to play an important role. The problem of the natural defensive power of the body against disease involves a study of some of the fundamental factors of the physiology of the organism. We are constantly receiving stimuli from the outside world. Light, heat, cold, humidity, wind, barometric pressure and many other component parts of our meteorological environment are stimuli that reach us through our body surface coverings and through the involuntary nervous system cause changes in physiological function. The healthy individual is one that has a perfect system of adaptation to these various stimuli. If the stimuli are too intense or if the individual for some reason cannot adapt himself to ordinary changes in stimuli, then dysfunction or ill-health became manifested.

We can insulate and train our bodies to be adapted to cool and cold climatic conditions. Artificial heating and ventilation during our indoor life is under our control. Food can be varied at will, such as an increase in fats and other high caloric foods. The problem of body economy during cold weather is to increase heat production and adjust by artificial means our heat loss. We are not so fortunate in hot weather. It is difficult for us to lose heat when the air around our bodies is about as warm as our skin. It then becomes a matter of reducing heat production and increasing loss. We can adjust our diet to this condition. The hot weather is associated with a greater change in the self-disinfecting power of the intestinal tract than cool weather. When the skin system becomes very active in eliminating heat, the digestive tract becomes relatively less active than it would be in cool weather. There is a diminution in gastric secretory function, there is a tendency toward a change in the reaction of the contents of the duodenum and jejunum toward the alkaline side. Ingested bacteria are no longer destroyed. One of the big natural defenses of the body against gastro-intestinal diseases is markedly interfered with and at times totally inhibited. These changes in the host as a result of imperfect adaptation to a hot environment play an important role in the summer intestinal diseases, such as typhoid fever, infectious diarrheas, etc.

Fecal typhoid carriers are biliary carriers.

The B. typhosus eliminated in the bile appears in the feces. If the self-disinfecting power of the upper half of the small intestine was normal, one would expect few, if any, B. typhosus to reach the large intestine in a viable condition. Typhoid carriers may be more persistent carriers in summer than in winter due to an intermittent interference with the auto-sterilizing action of the intestinal tract. Cooks and such people that work in hot and humid rooms form most of our typhoid carriers.

Without going farther into this question, we can readily see that the self-disinfecting power of the intestinal tract upon its contents is an important natural defensive mechanism of the body against certain disease-producing bacteria.

We have recently extended our studies of the self-disinfecting power of body surfaces to the nose and skin. Bacteria sprayed into the nose are rapidly destroyed. At least 95 to 98 per cent. are rendered non-stainable and non-viable within five minutes. Staphylococci, B. prodigiosus, B. pyocyaneus and B. coli have been used in these experiments. Repeated application of the bacteria upon the nasal mucous membrane does not in any way exhaust this self-disinfecting mechanism. This may in part explain why we have all been unsuccessful in transmitting upper respiratory diseases by spraying bacteria of various kinds into the nose of healthy people.

Bacteria placed upon the skin are quickly destroyed. The palmar surface of the hand is most effective in killing bacteria. Staphylococci disappear slower than B. coli. From our experimental evidence we are led to believe that the factors producing a simple and common boil are indeed very complicated.

These observations upon the natural defenses of the body against bacterial invasion have been extended to include the rate of disappearance of bacteria when injected into the blood stream. Dogs have been used for this work. Bacteria disappear rapidly in normal animals. The curve of the rate of disappearance is similar to that found in the nose and upon the skin. When an animal goes into shock (lowering of blood pressure, rapid shallow respiration with vomiting), during the course of such an experiment there is a sudden appearance within the blood stream of viable bacteria. As will be seen from one of the accompanying graphs, the bacteria had apparently almost disappeared and then during shock they reappeared in large numbers for a short period of time. It is difficult to explain this upon the theory of phagocytosis. We are taught to believe that bacteria are removed from the blood stream by being engulfed within endothelial cells in the big capillary beds of the body. We do not have evidence to disprove this theory, but inasmuch as the rate of disappearance of intravenously injected bacteria is similar to that of bacteria placed upon the body surface, we are inclined to believe that a similar biological phenomenon is taking place in each instance.

Our work is by no means complete; in fact, we have just begun. When a body has the power of instantly killing bacteria placed in contact with it, this phenomenon must be associated with a natural defensive reaction. Judging by our gastro-intestinal bactericidal studies, we should look for changes in the host to account for the loss of the body surface to defend itself against an invader. Bacteriology does not lose its importance as a factor in preventive medicine and public health, but the host increases in its importance as a link in this chain.

DISCUSSION

Dr. Thomas G. Hull, Springfield: In the control of contagion we have had two methods which we mainly rely upon. One has been artificial immunization, such as in smallpox, typhoid fever, etc., but this is rather limited. There are only a few diseases for which we have developed satisfactory immunization agencies; the other is segregation, quarantine if you will, although the quarantine does not mean exactly what it did once. Segregation has its drawbacks, as we have heard in the discussion of measles, and where the damage is done before the child is segregated.

We have a third method, as Dr. Arnold suggested, of an adaptation of the host to his environment. This is not entirely new. We have been using it in tuberculosis and in infant diarrheas of children, where we have adapted the individual to his environment, to his climate as he has led a healthy existence.

Now Dr. Arnold has studied the factors which govern this adaptation of the hospital. While we were pretty much in the dark before, where we were sending the patient to the mountains or dryer climate not knowing exactly why, except that he got well, now we know that the adaptation of the patient through the intestine, through his outer skin and through his mucous membranes and nose and throat are all very important. Would that we could some day entirely neglect segregation and substitute for it "adaptation."

IN A STUDY OF CESAREAN SECTION MORTALITY IN INDIANAPOLIS

in J. Indiana State Med. Ass., April, 1929, David L. Smith, M.D., makes the following statements:

"One obvious means of reducing Cesarean section deaths is the elimination of needless Cesarean sections.

"Too many Cesarean sections are still being done on two classes of women, namely, those with borderline pelves, and second, eclamptics.

"Eclampsia per se as an indication for Cesarean section is bad obstetrics. . . . Erdley Holland in his classic review in Great Britain and Ireland from 1911 to 1920 gives Cesarean section mortality on eclamptics as 32 per cent . . . while Welz gives 42.7 per cent as the death rate following Cesarean section on eclamptics in Detroit in 1925.

"In contrast to these high death rates, consider Straganoff's report in 1911 of 600 cases of eclampsia treated conservatively with only eight percent mortality, the Dublin report of 204 cases with a ten per cent mortality and Hastings Tweedy's eighty-three cases of eclampsia treated conservatively at the Rotunda Hospital with seven per cent mortality. On the average, then, three times as many eclamptics die following Cesarean section as do following conservative treatment."

WATERMELON-SEED EXTRACT IN THE TREATMENT OF HYPERTENSION

Drs. T. L. Althausen and Wm. J. Kerr, in the Am. J. Med. Sci., Oct., 1929, reach the following conclusions:

"1. Cucurbocitrin (extract of watermelon or pumpkin seeds) therapy in hypertension causes considerable lowering of the blood pressure, and gives complete or marked relief of symptoms in a majority of cases.

"2. Patients under the age of fifty years, with a known duration of hypertension of less than three years, and having little cardiovascular damage, are most likely to respond favorably to cucurbocitrin.

"3. The effects of cucurbocitrin and liver extract in hypertension are essentially alike in kind as well as in degree and apparently both are based on sustained peripheral vasodilatation."

POSTURAL TREATMENT OF POST-OPERATIVE MASSIVE ATELECTATIC COLLAPSE

C. G. Dyke, M.D., and M. C. Sosman, M.D., in the December number of Surg. Gynec. & Obst., tell us the cause of post-operative massive atelectasis; also its treatment by keeping the patient in the horizontal position, turned on the sound lung and encouraged to cough gently. This is to be followed by hyperventilation of the lung by carbon dioxide and oxygen for the next 24 hours, together with frequent changes of posture.

Society Proceedings

ADAMS COUNTY

The annual business meeting was called to order December 9, at 8:20 P. M. by the president, J. W. E. Bitter. Dr. Harold Swanberg gave a brief report concerning the 1929 meeting of the Radiological Society of North America held at Toronto. This was followed by a report of the 1929 meeting of the Associated Anesthetists of the United States and Canada, held in Chicago, by Dr. R. A. Harris.

Following this, the chairmen of the various committees and officers made brief reports.

After discussion on the question of abolishing the Council of the Society, Dr. Koch introduced the following resolution: "Be it resolved, that it is the sense of this meeting of the Adams County Medical Society, that the Council be abolished and that we carry on the business of the Society before its regular monthly meetings, and the by-laws be so amended."

The annual election resulted as follows: President, J. F. Ross; first vice-president, W. A. Trader; second vice-president, A. J. Blickhan; treasurer, J. A. Koch; secretary, Harold Swanberg; medico-legal member, Ralph McReynolds; councilors for two years, J. A. Koch, A. M. Austin and Grant Irwin; censor, C. A. Wells; library committee, E. B. Montgomery.

The Society appropriated $100.00 for the publication of the BULLETIN for 1930, and the secretary was given a rising vote of confidence for the manner in which the BULLETIN has been published heretofore.

The meeting place of the Society for 1930 will be at the Elk's Club, and the January meeting will be a social membership meeting, limited to the membership of the Society, and be placed in charge of the Entertainment Committee.

HAROLD SWANBERG, M. D.,
Secretary.

ALEXANDER COUNTY

The Alexander County Medical Society held its last meeting of the year at the Halliday Hotel Tuesday evening. The time between 8 and 9 o'clock was devoted to a business session, during which officers for the ensuing year were elected. Dr. James W. Dunn, president, presided over this session. The report of the secretary disclosed that the society had enjoyed a successful year, with a great deal accomplished in the line of organization, programs, and attendance.

The election of officers resulted in the following choice: Dr. Phil McNemer, president; Dr. James Woelfle, vice-president; Dr. James Dunn, secretary. Dr. James M. Gassoway was elected to the board of censors for a period of three years. Dr. Flint Bondurant was elected a delegate to the Illinois State Medical Society meeting, with Dr. Jas. Johnson as alternate.

Guests of the society members were Drs. Lee of Charleston, Mo., Drs. Hudson, Elkins, and Rife of Mounds and Dr. James Templeton of Pinckneyville, Ill.

Following the business meeting a six-course dinner was served in the blue room of the hotel. Dr. B. S. Hutcheson acted as toastmaster and introduced Dr.

Jas. Templeton of Pinckneyville, councilor for the tenth district, whose subject for the evening was "Medical Organization." Dr. Templeton traced the development of medicine and medical organization back to its foundation. In this address he pointed out the advantages of medical organization and the progress made in that line in the state of Illinois.

Dr. Dunn, retiring president, made an eloquent address on the "County Society as a Foundation of Medical Organization," in which he urged loyalty to, and support of the county society. Following Dr. Dunn, the president-elect for 1930 extended his thanks and appreciation for the honor paid him and a round table discussion followed the speakers. A vote of appreciation was tendered J. W. Walsh, manager of the Halliday Hotel, for courtesies extended during the year, as well as contributing to the success of the evening.

COOK COUNTY

CHICAGO MEDICAL SOCIETY

Joint Meeting With the Illinois and Chicago Societies of Industrial Medicine and Surgery, Dec. 4, 1929

Fracture of the Forearm and Wrist, with Lantern Slides. P. A. Bendixen, Davenport, Iowa.

Discussion: Allen B. Kanavel; Don Deal, Springfield, Illinois; W. R. Cubbins, R. R. Duff, Hollis Potter.

Multiple Fractures of the Pelvis with Dislocation of Head of Femur, with Lantern Slides. Clarence W. Hopkins.

Discussion: H. E. Mock; F. N. Cloyd, Danville, Illinois; S. B. MacLeod, Edson B. Fowler, Hollis Potter.

Regular Meeting, December 11

Some Phases of Plastic Surgery. F. B. Moorehead, Professor of Oral Surgery, Rush Medical College of the University of Chicago.

Regular Meeting, December 18, 1929

Maternal Mortality. Professor Marshal Allan, Professor of Obstetrics, University of Melbourne, Melbourne, Australia.

Prevention and Cure of Septicemia by a New Method of Wound Treatment. Dr. H. Winnette Orr, Lincoln, Nebraska.

EFFINGHAM COUNTY

The Effingham County Medical Society met on December 5, 1929, to hold their annual election of officers. The following officers were elected: President, A. E. Goebel, Montrose; 1st vice-president, H. Heuck, Sigel; 2nd vice-president, H. A. Long; secretary, C. H. Diehl; treasurer, S. F. Henry; delegate, F. Buckmaster; alternate, C. H. Diehl, all of Effingham; censors (1 year), S. C. Lorton, chairman, Shumway; (2 years), C. C. Holman; (3 years), T. F. Reuther; legislative committee, Dr. C. H. Diehl, all of Effingham; medico-legal committee, Dr. Harry Schumacher, Altamont.

The Society voted to have a talk on Current Events in Medicine at each meeting during the coming year in addition to their regular scientific program.

The last meeting for this year was on Dec. 12.

C. H. Diehl, M. D.,
Secretary, Effingham County Medical Society.

IROQUOIS COUNTY

The Iroquois County Medical Society met in regular session at the Nurses' Home, Watseka, Tuesday evening, December 10, at 7:30 o'clock.

The meeting was called to order by Vice-President Hedges. Minutes of the previous meeting were read and approved.

The following officers were elected for the coming year: President, A. L. Hedges; vice-president, E. L. Roberts; secretary-treasurer, C. H. Dowsett; delegate, E. L. Roberts; alternate, W. N. Whitsitt; censor for three years, H. W. Wood.

A scientific motion picture was then shown, showing first the Movements of the Elementary Tract in Experimental Animals and one showing the Influence of Drugs on Gastro-Intestinal Motility.

Dr. John Harger of Chicago was then introduced and read a very interesting paper on "Diagnosis and Treatment of Acute Intestinal Obstruction."

Dr. Geo. W. Ross led the discussion which was entered into with lively interest.

A rising vote of thanks was tendered Dr. Harger and Dr. Goldwater and Mr. Gould who showed the motion pictures.

Meeting adjourned about 10 P. M. when oyster stew was served a la cafeteria by the nurses dressed as Santa Clauses.

This meeting was pronounced as one of the most enjoyable and profitable of the year.

C. H. Dowsett, Secretary.

MADISON COUNTY

The Madison County Medical Society elected officers for the year 1930 as follows: President, Groves B. Smith, Alton; vice-president, C. E. Molden, Troy; secretary, D. D. Monroe, Edwardsville; treasurer, R. S. Barnsback, Edwardsville; state delegate, M. Pfeiffenberger, Alton; alternate state delegate, Mather Pfeiffenberger, Alton; medico-legal member, E. C. Ferguson, Edwardsville; censor, C. R. Kiser, Madison.

D. D. Monroe, Secretary.

PEORIA SOCIETY

Peoria Medical Society elected the following officers at the annual meeting: President, Wm. Major; 1st vice-president, W. C. Williams; 2nd vice-president, John Vonachan; secretary-treasurer, C. W. Magoret; delegates, R. L. Green, George Weber; alternates, Hugh Cooper and S. Eaton, all of Peoria.

Marriages

Philip H. Dorne to Miss Ruth Helen Kramer, both of Chicago, November 17.

Clayton Findeis Hogeboom to Miss Genevieve Merriam Borgers, both of Chicago, December 17.

Edward M. Irwin to Miss Emma Guenther, both of Belleville, Ill., in November.

JOSEPH K. NARAT, Chicago, to Miss Mitzi Loose of Los Angeles, recently.

CAESAR PORTES to Miss Rose Rubenstein, both of Chicago, November 28.

Personals

Dr. George Rubin has been elected commander of the Chicago Medical Post number 216 of the American Legion, succeeding Dr. Patrick J. H. Farrell, who has held that position for a number of years.

Dr. Frank A. Lagorio, who is associated with his father at the Chicago Pasteur Institute, has been made a chevalier of the Order of the Crown of Italy by King Victor Emanuel for work among Italians in Chicago.

The Chicago Council of Medical Women will be addressed, January 3, at the Medical and Dental Arts Club by Drs. Clara Jacobson on "Treatment of Early Tuberculosis," and Caroline Hedger on "Positive Health."

Dr. Joseph B. De Lee presented a "motion picture with movietone in eight reels on laparotrachelotomy, low cervical cesarean section," before the regular meeting of the Chicago Gynecological Society, December 19, at 8 o'clock.

Dr. Leon H. Martin, who since 1925 has been director of public health and welfare of Fort Worth, Texas, has taken up his duties at Jacksonville as superintendent of the Oak Lawn Sanatorium and as city and county health officer, succeeding Dr. Warner H. Newcomb, resigned.

Dr. Lucius H. P. Zeuch addressed the Chicago Historical Society, 632 North Dearborn Street, December 6, on "Pioneer Physicians and Shrines of Western Medicine." Dr. Zeuch is the author of the recent "History of Medical Practice in Illinois: Volume I, Preceding 1850," published by the Illinois State Medical Society.

News Notes

—Rush Medical College held its annual faculty-student reception December 6.

—About 500 bookplates, lent by American and European physicians and medical institutions, are on display daily at the library of the University of Illinois College of Medicine, 1817 West Polk Street.

—The dental clinic at Cook County Hospital celebrated its sixth anniversary, November 25. Children during the last year made about 21,000 visits to the dental clinic. Among these were 2,200 who came for the first time.

—At a meeting of the board of governors of the Institute of Medicine of Chicago the following officers were elected for the ensuing year: president, Dr. George E. Shambaugh; vice-president, Dr. John L. Porter; secretary, Dr. George H. Coleman, and treasurer, Dr. John Favill.

—The Chicago Pathological Society was addressed, December 9, by Dr. M. P. Neal and Max M. Ellis, Ph.D., Columbia, Mo., on "Experimental Fat Necrosis and Isolation of a Causative Factor;" Paul J. Breslich, "Squamous Cell Carcinoma of the Trachea," and Milton G. Bohrod, "Polypoid Pericarditis."

—The Chicago Medical Society was addressed, December 4, at a joint meeting with the state and city societies of industrial medicine and surgery by Drs. Peter A. Bendixen, Davenport, Iowa, on fracture of the forearm and wrist, and Clarence W. Hopkins on multiple fractures of the pelvis with dislocation of the head of the femur.

—The University of Chicago dedicated the George Herbert Jones Laboratory for graduate research work in chemistry, December 16-17, with a scientific program on the general topic "Some Present and Future Problems of Chemistry."

—The Chicago Pediatric Society was addressed, December 17, by Drs. George E. Shambaugh on "Some Observations on Ear Diseases in Children;" John J. Theobold, indications for paracentesis and treatment of acute middle ear infections in children, and Joseph Brennemann, "Acute Middle Ear Infections in Infants and Young Children from the Standpoint of the Pediatrician."

—The department of medicine of the University of Chicago has beds set aside in the Albert Merritt Billings Hospital for the study of pneumonia to which patients may be admitted free of charge if their financial circumstances warrant. The department of medicine holds clinical conferences at 4:30 p. m., Wednesdays, at the University of Chicago Clinics; members of the Chicago Medical Society are cordially invited.

—The Chicago Surgical Society was addressed, December 6, by Drs. Willis D. Gatch, Indianap-

olis, on "Clinical Application of Recent Research Work on Intestinal Obstruction;" Kellogg Speed and Dean L. Rider on "Experimental Bone Healing After Parathyroidectomy;" Dallas B. Phemister and Eloise Parsons, "Shock and Hemorrhage in Injuries of the Extremities," and Sumner L. S. Koch on "Acquired Contractures of the Hand."

—At the fifty-sixth annual meeting of the North Central Illinois Medical Association, Lacon, December 3, under the presidency of Dr. Frank D. McNertney, El Paso, Dr. Arthur Sprenger, Peoria, spoke on "Prostatic Hypertrophy" with moving pictures; Dr. Elven J. Berkheiser, Chicago, on "Dislocations of the Cervical Vertebrae," and Dr. Samuel J. Burrows, Chicago, "Some Principles of General Surgery." There was a morning, afternoon and evening session. Dr. Andy Hall, state health commissioner, addressed a public meeting on health problems in Illinois.

—The Illinois Federation of Women's Clubs and the parent-teacher associations are organizing a campaign which will reach every precinct in Chicago for the purpose of advising parents to take their children to the family physician or, if destitute, to the state and city departments of health to have them immunized against diphtheria. Citizens will cooperate with the health department in carrying on educational work by means of posters and newspaper articles. An advisory committee of the Chicago Medical Society has recommended to the health commissioner that practicing physicians make the injections at $1 each on Saturdays at hours which they may choose; the health commissioner, Dr. Arnold H. Kegel, desires that practitioners do this work. He has written all of them in Chicago outlining the work to be done and requesting their cooperation. It is estimated that there are about 500,000 children in Chicago to be immunized.

—A jury in Judge Hopkins' court, December 10, found W. H. H. Miller, former head of the state department of education and registration, guilty of conspiracy to sell medical and dental licenses to persons not qualified to practice. The sentence imposed was seven months and one day in jail and a maximum fine of $2,000. The defense attorneys filed a motion for a new trial which will be heard December 27. Miller, who was appointed to the foregoing position by Governor Len Small, was convicted in 1923, the Chicago *Tribune* says, of conspiracy to license pharmacists, at which time he paid a fine of $1,000. The governor then demanded his resignation. Others under indictment in the Illinois diploma mill investigation are said to be Harry Goldstein, alias Senator Browsky, Springfield, "Dr." Robert Lentine of Springfield, "Dr." Morris Kalmus, a New York dentist, Albert K. Barron and Jacob Crane, the latter the printer who is said to have made the fake licenses. Dr. Robert Adcox of St. Louis was the chief state witness, telling of making various payments to Miller in behalf of students seeking medical license. Miller, who offered no defense to refute the state's evidence, is now a candidate for the Republican nomination for congressman at large.

—The three diseases, smallpox, diphtheria and whooping cough, are together causing from 600 to 800 fresh cases of illness weekly in Illinois. Prevalence of each is noticeably above the average even for this time of year. The trend of all is upward. Distribution is general throughout the State. Two months ago the weekly incidence was about 350. Now the figure is twice that number. Smallpox and diphtheria can be prevented by vaccination. Controlling whooping cough depends upon quarantine.

—All applicants for federal pilot licenses, either for flying or for training as pilots, must pass physical examinations before physicians designated by the Secretary of Commerce. They must likewise be re-examined periodically. These examinations cover a rather detailed examination of the eyes, a brief examination of the ear, nose and throat, equilibrium, a general physical examination and a detailed examination of the nervous system. There are now about 750 medical examiners so designated throughout the country. All these examinations are reviewed in Washington where the applicant is finally certified as qualified or disqualified for the grade for which he has applied.

Whereas, The department requires that all examiners hold the degree of Doctor of Medicine, be licensed to practice medicine under the laws of their respective states, and further requires that the appointees be recognized as ethical practitioners in their respective localities,

thereby supporting the high standards advocated by this Association, be it

Resolved, That the American Medical Association at its stated assembly in 1929 endorses the medical work of the Department of Commerce, its methods of physical examination and its method of selection of medical examiners, and urges that the same high standards be continued and offers the support of the American Medical Association in furthering the specialty of aviation medicine.

—A campaign to provide a $3,000,000 medical center for Negroes is being launched on January 14, to run ten days, by the Provident Hospital and Training School in co-operation with the University of Chicago. The plan is to provide the most modern training school for Negro medical students and the most modern hospital for Negroes in America.

The high death rate of Negroes in Chicago has been attributed mainly to the fact that there have been no adequate facilities for the training of Negro doctors and Negro nurses.

Three million dollars is the minimum needed. Of that sum $1,000,000 is required by the University of Chicago as a teaching and research fund. This has already been subscribed to the University by John D. Rockefeller through the General Education Board.

The remaining $2,000,000 is needed by the Provident Hospital and Training School, of which $750,000 has been subscribed through the Julius Rosenwald Fund and other groups. The remaining $1,250,000 is to be raised in the general campaign.

The program of the Provident Hospital in co-operation with the University of Chicago will make possible high-grade care of Negro sick, instructions for Negro medical students, especially post graduates, increased number of internships for Negro doctors, advanced training never available heretofore, and opportunity for research on those diseases which present the gravest problems for the Negro race.

WILLING TO OBLIGE

Dietitian: Yes, a few lettuce leaves, without oil, and a glass of orange juice. There, madam, that completes your daily diet.

Mrs. Overweight: Thank you so much, Doctor, but do I take this before or after meals?—London Passing Show.

Deaths

JOHN J. AEBERLY, Chicago; Bennett Medical College, 1895; a member of Illinois State Medical Society; aged 72; died, Dec. 1, from fracture of the skull, as the result of a fall at home.

ALFRED BARRADELL, Chicago; Chicago College of medicine and Surgery, 1913; aged 60; died, December 2, of diabetes mellitus.

WILLIAM FRANKLIN DEAN, Elmhurst, Ill.; University of Michigan Homeopathic Medical School, Ann Arbor, 1891; aged 68; died, October 6.

THOMAS ELMER K. DIHEL, Chicago; University of Louisville (Ky.) School of Medicine, 1893; aged 67; died, November 23, of chronic myocarditis.

HUGH HOVER, East Moline, Ill.; Hering Medical College, 1900; assistant staff physician at East Moline state hospital; aged 53; died, December 3, of pneumonia.

HERBERT LAWSON JORDAN, Chicago; Bennett Medical College, 1914; a member of Illinois State Medical Society; aged 48; died, December 13, of chronic myocarditis.

OLEN WINFIELD LOOKER, Rock Island Ill.; Keokuk (Iowa) Medical College, 1894; age 70; died in October, at Rochester, Minn., of heart disease.

WILLIAM O'CONNOR, Chicago; Starling Medical College, Columbus, Ohio, 1895; age 56; died, November 23, of arteriosclerosis and cerebral hemorrhage.

WILLIAM HALL RUPERT, Crystal Lake, Ill.; General Medical College, Chicago, 1908; a member of Illinois State Medical Society; aged 47; died, November 27, at Wilgus Sanitarium, Rockford, of acute delirious mania.

JOSEPH SANDAHL, Chicago; Jenner Medical College, Chicago, 1906; aged 71; died, August 19, of chronic myocarditis.

CHARLES HENRY SCHMIDT, Chicago; University of Illinois College of Medicine, 1905; a member of Illinois State Medical Society and City Health Officer for 24 years; aged 48; died, November 28, of cerebral hemorrhage, at Norwegian-American Hospital.

CYRUS HARVEY SMITH, Abingdon, Ill.; Rush Medical College, 1895; aged 60; died, November 29, after more than a year's illness.

ROBERT A. SMITH, Chicago; Rush Medical College, 1903; a member of Illinois State Medical Society; assistant professor of pathology at the University of Illinois from 1906 to 1913; a captain in Medical Corps during the World War; aged 49; died, December 15, of carcinoma of sigmoid.

BRYCE REX WINBIGLER, Rock Island, Ill.; University of Illinois College of Medicine, 1904; former member of Illinois State Society; aged 51; died, November 20, of angina pectoris.

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